

THE CONNECTICUT SCHOOL JOURNAL.

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THE CONNECTICUT SCHOOL JOURNAL.

NEW SERIES.

NEW HAVEN, CONN., APRIL, 1872.

VOL. II.—NO. 4.

WEAK POINTS IN OUR COMMON- SCHOOL SYSTEM.—No. 2.

BY A. PARISH, NEW HAVEN.

To the causes already named which operate directly to impair the strength of our public school system and endanger its success, the following may be added:

4. *Inefficient supervision.*

Bank directors seldom neglect to attend to the wants and interests of the institution placed under their charge. There is money at stake. The stockholders intrust to them the management of their capital with confident expectation of receiving regular dividends. Thorough business men everywhere look after investments from which they expect profits. How is it with educational investments?

School houses are built, teachers are employed and paid a large aggregate amount of money; school committees and officers are elected who are charged with the duty of enforcing a thorough administration of the system of public instruction. And with what results? They do not appear among the financial reports of the stock market in Wall Street. The moderate gains and immense losses of intellectual pursuits are not exhibited in ledger form. But are the results less important because not appreciated?

Perhaps, as a rule, no better men are appointed to discharge the duties of other public offices, in the towns, than those elected as school committees; yet there are peculiar difficulties in the way of success of the latter which do not occur elsewhere.

1. They are usually active, business men; and, for that reason, the best and most competent to be found in the community, as counsellors, in everything until they arrive at the actual business of instruction. But *there* is the vulnerable, vital point, which few can reach. Failure to appreciate the qualifications and work of the teacher involves the failure of everything.

2. Want of time to attend to the interests of the schools is a common source of serious detriment.

3. Teachers of inferior qualifications are often

employed because cheap teachers must be had; good teachers are not easily found; the importunity of persons who seek positions for their friends is irresistible; and, moreover, not unfrequently committees are ignorant of the qualifications requisite for a teacher.

4. Frequent changes of teachers produce disastrous result upon the schools, and frequent changes of committees are but little less injurious; for, with the rotation of the latter, the appointment of new teachers almost necessarily follows.

5. Lack of interest in the work, for want of appreciation of its importance, or because the compensation for services is an insufficient stimulus to duty, and a pressure of private business, preventing the faithful performance of public duties, on the part of those appointed to promote the interests of education, are not uncommon hindrances to the success of committees.

The school committee act as the agents of the people; they are the chosen directors of the great copartnership, upon whom depends chiefly the success or failure of the enterprise. They have it in their power to strengthen weak points to which allusion has already been made, as well as those which remain to be mentioned. If they are strong in energy, enterprise, skill and devotion to the cause, there is reason to hope for grand results; if they are remiss in duty, failure is inevitable.

But there remains to be noticed in this connection, one other source of weakness, even serious danger to the system.

5. *The district system and double-headed mode of administration.*

It would not be easy to conceive a more effectual device for breaking down a system of public instruction, or indeed any other business enterprise, than the appointment of two sets of men to control and direct affairs, whom circumstances naturally lead to act in direct antagonism to each other on vital points. What does the school district system require?

1. That "each school district shall choose a committee of not more than three residents of the district, who shall, unless otherwise directed by the district, employ one or more qualified teachers; shall provide suitable school rooms and furnish the same

with fuel properly prepared; shall visit the schools; may provide books, for scholars not properly supplied, at the expense of the district; shall suspend all pupils guilty of incorrigibly bad conduct; and shall give such information and assistance to the school committees and visitors of the town as may be necessary to carry into full effect the powers and duties of school districts."

2. "Every town shall choose a board of school visitors not exceeding nine persons, who shall prescribe rules and regulations for the management, studies, books, classification, and discipline of the schools of the town; shall examine all candidates for teachers, and shall give a certificate setting forth the branches he or she is capable of teaching; shall visit all the schools, &c."

Here we find a legal requisition for the appointment of two distinct sets of officers to supervise the same institution. Their duties are in part identical; such as the visitation of the schools; exercise of authority in matters of discipline and enforcement of rules. In part they are entirely distinct, and it does not appear that either committee has the least power to interfere with, or control the other; and yet, a failure of either party to perform their respective duties must bring disaster to the schools. For instance, it is the duty of the district committee to "employ one or more teachers," and through a desire to keep the cost of the school at the lowest point possible, or to give employment to some favorite, or for other cause, he presents a candidate who is found, on examination, to be totally unqualified to fill the position. The time for opening the school is near at hand, the resources of the committee for a supply of teachers is limited, or, vexed because his candidate is rejected, he declines to make further effort; so an incompetent teacher, or none, must be tried. What can the board of visitors do, in the emergency? Not unfrequently serious personal enmity results from such an occasion. Within a week, the chairman of a board of visitors declared to me that the bitterest enemy he ever had, was made such by the rejection of an unqualified candidate.

Again the matter of discipline may be a cause of disagreement and consequent action, greatly detrimental to the interests of the schools. Both the district committee and board of visitors are empowered to exercise authority, but in case of difference of opinion, neither can dictate to, nor control the other. Inefficiency or neglect of duty on the part of the district committee cannot be remedied by the board of visitors. On many other points disagreement may occur.

But it is not a *single* district committee only, with which a board of visitors has to deal. The number in every town is equal to the number of school districts, which range from five to eighteen; so that whatever difficulties are liable to happen in

a single district may, perchance, be increased in proportion to the number of school districts in the town.

The difficulty of finding as many competent men in a town, as there are districts, may be readily inferred. The reality is thus tersely stated by a school visitor, who doubtless speaks feelingly from experience. He says, "Many are appointed, wholly unfit for the position. They have had no experience; they serve for the want of better men, or because they are compelled; and as soon as they are fairly initiated, they leave the business to other hands, as inexperienced as they were when they commenced." About the employment of teachers, he adds: "Under the present system the district committee employs a favorite teacher, whether qualified or not; his successor in office does the same; and however well the previous teacher may have done, must make room for the favorite of the next year's committee."

Another visitor gives his testimony as follows:

"Many of our shortcomings are chargeable to our present district system. The hiring of teachers is generally left to the district committee, one man usually acting. The office is a thankless one, and acceptance of it is avoided as much as possible.* The committee knows little what a teacher ought to be. He looks out for cheapness, or hires the first that offers, to save himself trouble, or is swayed by individual preference that has no good reason in it, or listens to prejudices that are utterly untenable. Perhaps a good teacher is employed, perhaps a poor one. If the school goes on without a break-down, with few complaints and general smoothness, the committee is satisfied. The district business affairs are managed too often on a penny-wise policy, which surely proves itself, in the end, to be pound-foolish. Teachers stingily paid and slowly paid, buildings poor and ill furnished, lack of interest, general slackness, such are some of the fruits of the present system."

Neither time nor space will allow a full discussion of this topic here, which, in whatever light it may be examined, appears conspicuous among the obstacles to a complete success of our public school system. It should, however, be said that there are some towns in which the evil results are less conspicuous than in others. Generally, the smallest towns and districts suffer most. In districts con-

* And so the law doubtless regards it, since it imposes a fine of five dollars for a refusal to accept and perform the duties of the office.

taining less than a dozen children between four and sixteen years of age, and there are nearly *four hundred* such in the State, suitable provision for an efficient school is impossible with any reasonable expenditure of money. In districts of cities and large towns, if anywhere, competent men can be found to perform all the duties of the school committee, and the wealth of the district may be such as not to require an exorbitant tax to provide for the expense of such an arrangement. But experience is yet to determine whether or not, even in cities, the district system is preferable, in view of efficiency and economy, to the union plan under the direction and supervision of a general committee, whose duty shall be to provide equal advantages to all, so far as circumstances will permit.

Other sources of weakness affecting our school system might be considered; but those already presented will suffice to show that causes exist which tend *directly* to impair its usefulness, occasioning immense sacrifice of money contributed for its support and of labor performed in its administration; yet causing infinitely greater loss to the community in its failure to secure those advantages which might improve every branch of industry and contribute greater security and enjoyment to the social compact.

MATHEMATICS IN HISTORY.—No. 2.

GEOMETRY, TRIGONOMETRY, MENSURATION.

BY PROF. R. FLETCHER, DARTMOUTH COLLEGE.

The word *geometry* is derived from the Greek *γη*—earth, and *μετρον*—to measure, and signifies the measuring of land, which indicates one of the earliest applications, if not the origin, of the science.

We are informed by Herodotus (B. C. 484) and by Strabo (B. C. 50) that the Egyptians originated geometry. The overflows of the Nile made yearly changes in the extent and configuration of their lands and removed the landmarks; whence the task of re-measuring and re-dividing after each inundation; this, it is argued, brought to their minds a knowledge of the first principles of geometry and of some of its important propositions. But it is probable that these people merely applied—while, perhaps, largely extending—a knowledge which mankind possessed long before the beginning of Egyptian nationality. When men abandoned the wandering mode of life and congregated into communities, questions regarding the division of various kinds of property soon arose. Some of these, being related to tangible objects, or *concrete quantity*, led,

as before suggested, to the beginnings of a knowledge of Arithmetic. Others, especially such as concerned the apportioning of lands, the erection of habitations, etc., brought to mind the first rude conceptions of geometrical principles. This small knowledge was increased and improved by each succeeding generation, as circumstances favored its growth, until it attained sufficient importance to receive the attention of men who devoted themselves to intellectual pursuits. We know that there were such men in very early ages of the world. As far back as the Deluge, Noah, in constructing the ark, necessarily brought into use some of the fundamental principles of this science. The wonderful monuments of Assyrian and Egyptian civilization and the marvelous ruins of the desert cities of Arabia, which have been preserved, in greater or less degree, to our time, are evidences that those who reared them possessed a more or less matured knowledge of geometry, such as must have come to them by gradual growth, through preceding generations. About 1,000 years B. C. was erected Solomon's Temple, one of the most costly and remarkable buildings which the world has ever seen. [It is claimed, with reason, that the architectural conceptions of the Greeks were largely obtained from this structure, which was in existence during the early growth of their civilization.] Now, in the account of the building of this temple, given by the sacred historian in the first book of Kings, we are informed: "And the house, when it was in building, was built of stone made ready before it was brought thither; so that there was neither hammer, nor axe, nor any tool of iron heard in the house, while it was in building." Here is evidence that the arts of carpentry and stone-cutting had been brought to no small degree of perfection; hence these people must have possessed, at this time, no inconsiderable knowledge of the *science* of geometry and its applications. It is not strange that the ideas of these ancient nations on this subject have not come down to us in such of their records as we have. From the hieroglyphics of the Assyrians and Egyptians it would seem that their history and military achievements were almost the only matters they esteemed worthy of record. And the scribes and elders of the Hebrews, who possessed all the literary knowledge of that nation, devoted their pens, apparently, almost altogether to religious literature.

So much for reasonable speculation. But we must confine ourselves to historical facts. Now it is impossible to do justice to a subject of such extent and interest within the limits of an article like

this. It will be our aim merely to sketch in outline the more important steps in the history of this science.*

It is said that geometry was introduced into Greece about 600 B. C. by Thales, a philosopher of that country. He traveled extensively in Egypt and there acquired, from the priests or *magi*, much of Egyptian learning. He predicted, according to Herodotus, an eclipse, which, by the calculation of modern astronomers, must have occurred Sept., 610 B. C. This fact alone indicates a considerable degree of perfection in the sciences at this time. About 570 B. C. Pythagoras, a friend and pupil of Thales, began to make his valuable discoveries in many branches of knowledge. Besides his contributions to arithmetic, before referred to, in geometry he first demonstrated the theorem known as the "Pons Asinorum," hence called the Pythagorean theorem, and developed therefrom many dependent truths; among others, that the side and diagonal of a square are incommensurable. He it was who first proved that the sum of the three angles of a plane triangle equals two right angles. It is said that: "In astronomy, he suggested the true idea of the solar system, placing the sun in the center, and making the planets revolve about him," which theory was overthrown by Aristotle, who advanced what is now called the Ptolemaic theory, which was accepted by the world for nearly 2,000 years.

A little later flourished several eminent astronomers and geometers, among them Zenodorus (B. C. 480), "the first of the ancients whose works have been handed down to us, all before his time having been lost or destroyed." About 450 B. C. lived Hippocrates of Chios, "who distinguished himself by the celebrated quadrature of the *lunes** which bear his name, as well as by his discoveries connected with the problem of *doubling the cube*,† which excited great interest among the mathematicians of this period." According to the old Grecian legend: "Apollo, having afflicted the Athenians with a dreadful pestilence, to revenge an affront received from them, the oracle of Delos was consulted as to the means of appeasing his wrath; the answer was: 'Double the altar,' which, being a perfect cube, gave rise to this celebrated problem. The question at first appeared easy, but the mistake was soon discovered, and all the genius of the Greek

mathematicians was unable to produce a complete solution." The endeavor was to solve it *geometrically*, i. e., by use of the rule, triangle, and compass only. Any other methods they called *mechanical*, and would not employ. Among the results of these investigations we have the *conchoia** of Nicomedes, the *cisoid** of Diocles, and the *quadratrix** of Dinostratus.

Omitting all mention of several astronomers and geometers of less note, we come to Plato (B. C. 400—350). He held geometry in such high estimation that he placed, over the door of his academy, the inscription: "Let no one ignorant of geometry enter here." He called the science *mensuration*, esteeming the common name too mean. Others have since given it the title *Pantometry*, i. e., the science of measuring all things. Even these terms are now inadequate in their import for the name of a science which comprehends so much. Before Plato's time the circle was the only curve considered in geometry. He first introduced and treated of the *conic sections*.* This new field was rapidly explored and soon constituted another branch of the science, known as the *higher* or *sublime* geometry. "Aristeus, his disciple, is said to have composed five books on these figures, of which the ancients have spoken with the greatest commendation." Unfortunately these have not been transmitted to our time. Menechmus, about this time, applied the *quadratrix* to the problem of doubling the cube, "which process seems to have been the germ of what is now termed *geometrical analysis*.† Both Plato and other mathematicians resolved the problem theoretically but not practically. In his school was also agitated the celebrated problem of the *trisection of an angle*.* On this point Bossut writes: "Most of the ancient geometricians were so possessed with the hope of resolving these problems by means of the rule and compass, that they could not bring themselves to give it up. They made many fruitless attempts; and this eagerness became a kind of epidemic disease which has been transmitted from age to age down to the present day; and, in fact, it was relinquished by those who kept pace with the progress of mathematics, only, when in modern days, algebra began to be applied to geometry."

About 90 years after Plato, appeared Euclid. The theorems which had been propounded by his predecessors in Egypt he collected and digested in fifteen books, called the "Elements of Euclid." No

* For more information the reader is referred to the following works, viz: Bossut's History of Mathematics, London, 1803; Hutton's Mathematical and Philosophical Dictionary, London, 1795-6; Barlow's Math. and Phil. Dictionary, London, 1814.

† See Davies' and Peck's Dictionary of Mathematics, "*lune*," "*duplication*," &c.

* See Davies' and Peck's Dictionary of Math.

† Same work under "*Analysis*."

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work of science was ever so successful as this ; it has been used exclusively, for centuries, in every place of mathematical instruction. "At that time the Grecian sciences were in their meridian splendor. Archimedes, one of the greatest geometers that ever appeared in any age or country, followed soon after the time of Euclid" (B. C. 250). He explored almost every field of knowledge which, at that time, had been entered. "Arithmetic," geometry, mechanics, optics, and hydrodynamics were alike the objects of his investigations. In geometry he discovered the ratio between the sphere and its circumscribing cylinder, found the *quadrature** of the parabola and the solidity of its *conoid**; he invented the spiral* which bears his name, and discovered its rectification*; besides a great variety of other interesting and important propositions." He first determined the approximate ratio between the diameter and the circumference of a circle and proved that an exact ratio cannot be found. But this has not deterred inferior mathematicians, in all ages of the world, from attempting to "square the circle," *i. e.*, to find a square whose area is equal to that of a given circle. Hutton, in one of his works† gives an interesting account of some of these necessarily fruitless attempts. Bossut writes: "The numerous discoveries with which Archimedes enriched the mathematics, have placed him among the small number of those rare and inventive geniuses who, from time to time, have given a great impulse to the whole body of science. Besides his work on the Dimension of the Circle, we have his treatises of the Sphere and Cylinder, of Conoids and Spheroids, of Spiral Lines, of the Quadrature of the Parabola, of Equiponderants, of Bodies floating on a Fluid, etc. He desired, when he was dying, that a sphere inscribed in a cylinder might be engraved on his tomb, to perpetuate the memory of his most brilliant discovery. His desire was obeyed, but the Syracusans, or Sicilians, his countrymen, having their minds turned on objects very different from geometry, soon forgot the man who was their chief honor in the eyes of posterity."

About 50 years after Archimedes, Apollonius of Perga cultivated mathematics with such success that he was called the "great geometrician." His works on the conic sections are the oldest in existence on the subject. After this most brilliant era of ancient geometry, of which Archimedes and Apollonius were the great lights, "we meet with no other mathematician of the first order, yet there

were several who cultivated both geometry and astronomy." "Such, for instance, as Eratosthenes (B. C. 230), who first attempted to measure the circumference of the earth; Ctesibus (B. C. 230), to whom we are indebted for the useful invention of water-pumps; Hero of Alexandria (B. C. 230), who was much celebrated for his applications of geometry to the practical purposes of mensuration, and to whom we are indebted for the invention of Clepsydreæ,* or water-clocks."

Closely related to geometry are *Trigonometry* and *Mensuration*. The former word signifies the measuring of triangles, being derived from the Greek *τριγωνον*—a triangle, and *μετρον*—to measure. The origin of trigonometry is involved in much obscurity, but it probably developed into a science during the three or four centuries immediately preceding the Christian era. We are informed that Hipparchus (B. C. 150) wrote a work in twelve books on the chords of circular arcs, which must evidently have been a treatise on trigonometry. Menelaus, a Greek (A. D. 50), wrote a book on spherical triangles, part of which has been preserved to the present day. It contains all the principles necessary for the practice of ancient astronomy, in which science this author was eminent. About 100 A. D., Theodosius, a Roman, wrote an excellent treatise on the sphere, which may be considered the first work on spherical trigonometry. The trigonometrical operations of the ancients were performed by means of chords; the introduction of sines and cosines and the simplification of the science generally took place, as we shall learn, at a later day. The earliest ancient trigonometrical tables of importance which we possess are given by Ptolemy (A. D. 150) in his *Almagest*.

Mensuration is defined by Davies as that branch of mathematics which embraces every operation employed in determining the measures of all geometrical magnitudes, *i. e.*, of lines, surfaces, volumes, and angles. It is merely an extension and application of geometry. At the time of Euclid the ancients had succeeded in measuring the triangle, and, hence, all rectilineal plane figures. That geometer found means of measuring all volumes bounded by right-lined edges, in which respect he did all that can be done at the present day. He failed in his attempts on the circle and sphere. On these problems, as we have learned, Archimedes was more successful. No enumeration of the achievements of this great man in this branch, and of the valuable contributions which he made thereto,

* See Davies' and Peck's Dict. of Math.

† Hutton's "Recreations," translated from Ozanam.

* See Barlow's Dict.

can be here attempted.* The subject, since his time, has kept pace with the science of which it is a branch. In all subsequent mention of geometry we shall include the *higher geometry* and *mensuration*.

The Greeks continued their attention to mathematics long after their subjugation by the Romans. We might mention several mathematicians of note who lived during the first six centuries of the Christian era. Nothing of importance, however, was added during all this time. The Romans, singular as it may seem, paid little or no attention to this science. It possessed little attraction for their scholars, through all the centuries of their world-wide dominion, and even during the golden age of their literature. According to Tacitus, they gave the name mathematicians to those who pursued the chimeras of divination and judicial astrology. Nor were they more disposed to cultivate it during the decline of the Empire.

Indeed, throughout the world, most of the sciences met with little favor during these centuries. They were studied and fostered, however, at the Alexandrine School, which, for several ages, enjoyed great celebrity. But they could not fail to degenerate, and they gradually lost the strict character impressed upon them by the early Greeks.

We have thus briefly traced the history of mathematics down to the 7th century. Events of the utmost importance, in their relations to literature and science, now took place. We refer to the conquests of the Saracens. A new point of departure for subsequent inquiries is, as we shall see, thus afforded.

* The reader is referred to Hutton's translation of Ozanam and to Barlow's Dict.

TO-DAY.

BY REV. J. K. LOMBARD, NORTHAMPTON, MASS.

What tremulous beam, what keen visions shall weigh
The infinite issues that wait on To-day !
While indolence murmurs " *I would*" with a sigh,
And duty responds " Up and do, ere you die !"
Indecision continues irresolute still,
And action awaits an electric " *I will* !"
The evening, as slowly it fades into night,
Whispers sadly " Alas, had you willed when you might !"
Yet silvery voices chant sweetly " *You may*,
For still there is time, while 'tis counted To-day."

Fair bark, with the wealth of the Orient freighted,
Fair tree with the fruitage of Paradise weighted,
Blest moment whose gift is so light estimated,
The white-sanded beaches are grooved by the prow,
An infant's hand reaches the low drooping bough,
Occasion beseeches, " Wake never, or now !"

The vessel, white winged, but a breath is delaying,
The over-ripe fruit is already decaying,
The pitiless moment, while fleeting, is saying,
" Fair bark, speed thy course to a friendlier shore,
Fair tree, waste no longer thy nectarine store,
Fond mortal, occasion may greet thee no more."

Bright dawn we await, of the unknown to-morrow,
Whose ray shall disperse the dread phantoms of sorrow,
Whose splendor the fancy in vision would borrow,
Come, break with thy first crimson flush o'er the sea,
Bid error's night-brood in discomfiture flee,
Unveil to our senses the glory to be !

Vain, vain is the dream of a happier morning
For him whose dull eye greets the present with scorn,
Disdaining in madness its wealth and its warning :
To-morrow for mortals shall never arise,
God's secret is hidden from curious eyes ;
TO-DAY is eternity's boon to the wise.

SCHOOL ATTENDANCE IN CONNECTICUT.

BY D. P. CORBIN, HARTFORD.

At an educational convention at Allyn Hall, Hartford, May 31st, 1871, Governor Jewell is reported to have said of Connecticut: "She has a larger number of children in her schools in proportion to the entire number than any other state." At the same convention a letter was read from Ex-Governor English, in which were the following passages :

"The percentage of children in schools of all kinds in the State is nearly ninety-five and two thirds of the whole number enumerated, leaving only four and one-third per centum of the number who are not in attendance, for a portion of the year, at least, upon some public or private school. I doubt if there is another State in the Union that can show as proud and gratifying a record as this."

In the House of Representatives, May 29th, Mr. Potter, chairman of Committee on Education, "called up house bill 73, which was an amendment to the factory act, concerning sending children to school three months in a year. Mr. Seymour, of Litchfield, asked if 95 per cent. of the children were not already in school. Mr. Potter said they were. (He afterwards modified the assertion). Mr. Seymour would vote for no entering wedge for compulsory education, as now there were really 95 per cent. of the children in the schools. Gen. Pratt said it was 10 per cent. too high. Mr. Seymour took the per cent. to be correct, and until the 'heathen Chinese' came here he could not consider the system of compulsion necessary. The proportion of children was larger than anywhere else, and showed that the law worked well. Dr. Miller, of

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Enfield, did not believe the per cent. was so great. Mr. Hall, of Windham, said the bill seemed objectionable in every feature. The per cent. showed we were on the high pressure system. He had to take the report of the Board of Education as correct notwithstanding what members said. Mr. Seymour said he had been arguing on the basis of the report of the Board of Education which he must still consider to be correct."

The bill was finally carried in spite of the large asserted per cent., principally by the eloquence of a most touching appeal from the junior member from Hartford, Mr. Merrill, who was himself a teacher of experience.

In the report of the secretary of the Board of Education, for year ending August, 1870, under the head of "Neglected Children," pp. 116, 117, and 118, are the following statements:

"The handsomest figures in this report are those which show the comparatively small number of neglected children, or the great diminution of those in no school. When first entering on my duties as your secretary, I was appalled by the extent of the absenteeism, and in my first report felt compelled to use the following language:

"The ugliest figures in this summary are those which show the alarming extent of absenteeism and truancy. The foregoing statistics show that the average attendance in summer is 68,585 less than the whole number of children enumerated, and in winter is 63,767. The per centage of average attendance in summer is but 43 $\frac{1}{2}$, and in winter is only 47 $\frac{1}{2}$. Less than one-half of the children of the State are found, on an average, in our public schools. In summer we find 47,019 children not registered in the public schools, and in the winter 40,736. These startling facts demand grave consideration. After a liberal allowance for the patronage of private schools, the conviction is forced upon me, that thousands are growing up in ignorance, or being trained in the street school for vagrancy and vice.

"The evils of truancy are so obvious and serious, that it would seem nothing need be said of its mischievous tendencies; and yet, were they duly appreciated, a remedy would everywhere be found and applied."

"During the last four years, I have often urged this subject, by tongue and pen. The press and pulpit have responded in earnest tones. The agent of the Board has rendered most valuable aid in this direction. Much individual effort has been put forth by teachers, school visitors and our public-spirited and intelligent manufacturers, who at a sacrifice of convenience and profit, have favored the enforcement of the law for the schooling of minors, and by these combined agencies, a grand result has been reached. In fact, words can not express the value of the aid thus rendered. To find in schools of all kinds a percentage of those enumerated of ninety-five and sixty-four one-hundredths is a ground for gratitude to God. But much more needs to be done. Our efforts in this direction should not cease while a single child of ignorant, intemperate or vicious parents remains neglected. The interests of the children must not be sacrificed to the folly, vice, or greed of parents or guardians.

"The result already attained is the more striking when it is remembered that our enumeration begins at four years of age. In the majority of States, the enumeration begins at five or six, as may be seen by the table on page 223. In Massachusetts, the age of enumeration is from five to fifteen, while ours is four to sixteen. In Massachusetts the number between four and five years of age is

estimated at over 27,000, while the whole number under five years attending public schools is only 2,894, leaving over 24,000, between four and five years, not attending schools. These figures confirm the statement previously made, that many judicious parents do not send their children under four years of age to school, and they show also that our attendance is already approaching the maximum attainable."

How has this "ninety-five and sixty-four one-hundredths" been obtained. If the whole number enumerated from four to sixteen, viz.: 125,407 be taken for divisor and the reported "whole number in school of all kinds," viz.: 119,944 be taken for a dividend we shall obtain it nearly. How is so large a dividend secured? Apparently in this way:

1st. Reckon all those from four to sixteen who have been for a day or more registered *once* in any school public, private, or academical.

2d. Add those *over* sixteen who for a day or more appear on the rolls of any of the above schools, *once*.

3d. Add for the *second* time those who have been promoted to high schools.

4th. Add for the *second, third or fourth* time, those who have changed from one district or town to another or others, and those who have changed from public to private or private to public schools.

It is easy to see that the statement of Ex-Gov. English, "that only four and one-third per cent. of the number are left who are not in attendance for a portion of the year at least," is incorrect if we consider that "the number" means those between four and sixteen, and that several thousands *over* sixteen, attending either public, private or academical schools have been considered to be between four and sixteen in order to obtain such a per cent. The error becomes still more serious if we properly estimate the recounting.

The extent of attendance upon private schools is one of the best tests of the inefficiency of common schools, and such attendance ought not to be so set forth as to *appear* to be proof of their efficiency. These per cents. ignore the irrepressible conflict between public and private schools, and their utter absurdity is patent if we make our enumeration from five to fifteen; and then attempt devoutly to write, "To find in schools of all kinds a percentage of those enumerated of" one hundred and fifteen and eighteen "one-hundredths is a ground for gratitude to God."

The important questions are—What has been the average attendance upon our public schools for one hundred and sixty-eight and one-half days on which they are in session? and what per cent. of our enumeration is this attendance? Let us carry out

our statistics in the same plain way in which they were stated by the secretary in his first report—that for the year ending August, 1867. Against the fact that in that year the “average attendance in summer was 68,585 less than the enumeration, and in winter was 63,767 less,” we find that for the year ending August, 1870, in summer it was 67,059 and in winter 58,505 less. If the per cent. of average attendance for the former year was in summer but 43, and in winter only 47, in the latter it was in summer only 47 and winter 53. If then there were found in summer 47,019 children not registered in public schools, and in winter 40,736, it might have been said for the year ending August, 1870, that 42,208 were not registered in summer and 31,305 in winter. If for the former year it was said “that less than one-half of the children of the state are found on an average in the public schools,” *the same might be said and ought to be said of the latter.*

By the last report we must infer that in summer more than one-third, and in winter more than one-quarter of the enumerated children are not found in the public schools even for a day; and that on an average *our children are actually receiving less than eighty-four days of schooling in a year.* In this connection it is well to recall the fact that in 1839 and 1846 the average length of the schools for the year was thirty-five weeks of five and a half or six days to the week. The figures for the year ending, August, 1870, are nearly as “startling” as for 1867, and show that we are far from “approaching the maximum attainable.” The gain of more than one per cent. per year for the last four years is encouraging, and yet the truth is that our present average attendance shows a smaller per cent. of our enumeration than that which appears in the days of Henry Barnard, in 1839, or Seth P. Beers, in 1847, and much smaller than in Massachusetts or Boston, as the following table shows.

	Connecticut.	Massachusetts.	Boston.
1870	50	61	58
1869	49	60	61
1868	46	61	59
1867	45	60	61
1866	46	60	61
1865	47	62	59
1864	—	62	62
1863	46	63	63
1862	47	62	62
1861	—	61	63
1847	56		
1839	53		

It will be seen that for ten years ending 1870, the average attendance, compared with enumeration from four to sixteen, is *fourteen* per cent. less in Connecticut than in Massachusetts.

CONNECTICUT SCHOOL STATISTICS.

BY REV. J. G. BAIRD.

The article on “School Attendance in Connecticut,” is worthy of careful attention. There can be no advantage in claiming for the schools of our State greater honor than is really due. The author of that article, we are confident, would not abate one iota of the credit that is honestly deserved by our schools. We believe him to be in full sympathy with the recent movements for improving the public schools of the State, and earnestly desirous that this improvement should be carried to the highest attainable point. But he takes exception to certain figures given in the last State Report, or to speak more exactly, to some *inferences* that have been drawn from those figures.

The “percentage of children in schools of all kinds” the Report gives as 95.64. This would leave only 4.36 per cent. *not* in school, provided all the scholars included in the computation were between 4 and 16 years of age. But the report distinctly states that 3,324 of those registered in *public* schools were over 16 years. Of those in *private* schools, a considerable proportion were also over 16 years of age. Many in both public and private schools were undoubtedly under 4 years of age. In computing a percentage, like that given in the Report, the proper way would be, unquestionably, to deduct from the whole number those who were above or below the legal ages of enumeration. But how shall the number to be deducted be ascertained? The Report itself contains the data for ascertaining it with a good degree of accuracy. The “number between 4 and 16 years of age in no school” was reported as 11,887. This is 9.48 per cent. of 125,407. In other words, 9½ per cent. of those *enumerated* were not in schools of any kind, and 90½ per cent. were in schools of some kind. Or, deducting 11,887 from 125,407, we have 113,520 as the number of scholars between 4 and 16 years of age. Now subtract this number, 113,520, from 119,944—the number of scholars of *all* ages—and we have 6,424 as the number either under 4 or over 16 years of age. The whole number of children upon which the percentage should be computed might therefore be taken as $125,407 - 6,424 = 118,983$; and of this number 119,944 is 90.98 per cent., or in round numbers, 91 per cent. Instead of the percentage given in the Report, it would be more accurate to say that a little less than 91 per cent. of the children of the State attend some school a part of each year.

But the writer maintains that extensive deductions must be made from the number given in the Report, in order to arrive at the real number of different scholars in schools of all kinds. The number reported is obtained, as the Report shows, by adding together the numbers returned by the Acting Visitors of the several towns to the Secretary of the State Board of Education. The Secretary, both by law, and of necessity, must depend upon the Visitors for this information. The utmost he can do in this matter is to obtain from the Visitors as full and accurate reports as possible. This he has always done. It is but just to say that the very great majority of Acting Visitors are careful, painstaking men, who make special efforts to prepare trustworthy reports. While it cannot be claimed that their reports are absolutely free from error—as it is impossible that they should be—there is no proof whatever that all the errors are in one direction. No doubt some children are counted more than once, by reason of having attended more than one school in the year. But neither is there any doubt that many children, especially of those attending private schools, fail to be reported at all. The blanks that are distributed, both for district and town reports, require that “all the children should be accounted for, as either in *public* school, in *some other* school, or in *no* school.” An examination of the figures reported from the several towns will show that in comparatively few of them does the number thus accounted for *exactly* agree with the number to be accounted for, but is sometimes greater, and sometimes less. When it is greater, the excess is to be explained, in some cases, by the attendance of those above or below the ages of enumeration, in others, by the immigration of families after the enumeration has been made, and in others still by the attendance of scholars from adjoining towns. But when a part of the children are not accounted for, as is often the case, there is at least as much reason for the supposition that they are in some private school, but are overlooked and not reported, as for any other supposition. Many Acting Visitors appear to understand that they are to report those children only who attend school *in their own town*, and hence those who go out of the town,—many of them out of the State,—to attend school are not reported at all.

There is good reason for objecting to the manner in which the article explains the mode of computing the whole number of scholars. (1.) Those who have been registered for only a day, or a very few days, are not always included. There is a de-

sire to make the “average attendance” as large as possible. If a scholar attends but a day or two, or a very few days, to include him in the reckoning is to diminish the percentage of average attendance. In some schools the “average number *belonging*,” instead of the *whole* number registered, is taken into the account, but this method gives an unfair advantage over the schools which compute their average attendance by the other method, and it is impracticable in country schools, and is not employed in the State Report. Still, the natural and praiseworthy desire to make a good appearance is a strong motive for excluding from the calculation such scholars as were only transiently and nominally connected with the school. Where shall the line be drawn? How long must a child attend school to be entitled to be reckoned as attending? The law of the State is silent on this point. Any rule that may be adopted is necessarily arbitrary. In some States no child is reckoned as attending at all unless he is present at least *two weeks*. But why say *two weeks*, rather than *three weeks*, or *four weeks*, or *one week*? The child who is in school only two weeks receives hardly more benefit thereby than if he had attended for a single day. *Possibly* some have been returned as attending school in this State who have attended only one day, or a very few days, but to assume or intimate that this has been *frequently* or *usually* done is contrary to fact. If the Secretary's Report errs by “putting the best foot forward,” this assumption appears to us a far *greater* error in the other direction.

(2.) To the inquiry, “Why not include collegians also?” *i. e.*, as well as scholars over 16, it is sufficient to reply, because the scholars over 16 included in the Report are *in the same schools* with the great mass of the children of the State, while collegians are in entirely separate institutions. In the one case, to include them is most natural, and hardly to be avoided, in the other they could be included only by going out of the way to do it.

(3.) and (4.) There is *some* foundation for the belief that scholars who go from one school to another during the year are returned and reckoned more than once. Where the different schools attended are in the same town, the Visitors have some means of knowing that a scholar is liable to be counted more than once, and of correcting or preventing such error, and many of them do so. But where a child or a family removes from one town to another, the Visitors in each town cannot be expected to ascertain how many of these newly arrived scholars have

already been registered elsewhere; nor would justice to their own schools permit them to omit such scholars from their returns. We have no doubt that *some* of those who pass from one school, or one town, to another, are counted more than once.

But is there any intrinsic improbability of the correctness of the "whole number of different scholars registered" in the public schools? That number is given as 110,640. The number registered in winter was 94,092, and in summer, 83,192. Consequently, 16,548 attended in summer who did not attend in winter, and 27,448 attended in winter but not in summer. Two facts, in two distinct classes of towns, tend to confirm the correctness of these figures. (1.) In the farming towns, the winter schools are composed mainly of the *older* children of the district—the farmers' sons whose summers are spent in the labors of the farm, and the daughters of the same families, some of whom are *teachers* in the summer schools. Many of these winter scholars are over 16 years of age. Visit those same school houses in summer, and you will find a group of *little* children, a large part of whom were not there in winter. There is in many rural districts the tacit understanding that the *winter* schools are for the *older* scholars, who cannot attend in summer, and the *summer* schools for the *little* ones, unable to walk long distances in the blasts and snows of winter. Three or four years ago an Acting Visitor wrote as follows: "I observed with surprise that of the scholars attending the winter school, not more than two or three were members of the summer school, so that the summer term was conducted with essentially a new school." (2.) The other fact is found in the manufacturing towns and villages. Under the new law requiring that every child under 14 years of age shall have at least three months schooling in every year, hundreds of children employed in manufactories were sent to school for the time required, who then returned to their factory labors, while others took their places in school. The very large increase in the number of different scholars registered in some manufacturing towns is evidence on this point. Is there any improbability that 16,500 children in the State attend school in summer only? And if there are so many of that class, is not the whole number of different scholars registered as nearly correct as any practicable method of procuring returns can make it?

The following figures, taken from the reports of 1868 and 1871, show the changes effected in three years. The method of computation in the two reports is *precisely the same*.

	Report of 1868.	Report of 1871.	Increase.
Enumerated, - - -	120,884	125,407	4,523
Registered, winter, -	80,148	94,092	13,944
" summer, -	73,865	83,192	9,327
Av. at. winter, -	57,119	66,902	9,783
" summer, -	52,299	58,348	6,049
Per cent. reg. winter, -	66.30	75.03	8.73
" summer, -	61.10	66.36	5.26
" av. at. winter, -	47.25	53.35	6.10
" " summer, -	43.26	46.53	3.27

These figures tell their own story. Comment is not called for. With an increase of 4,500 in the enumeration, there was an increase of nearly 14,000 in the number registered in winter, and of nearly 10,000 in the average attendance in winter; while the increase in summer is very decidedly greater than the increase in the number of children. In the *proportionate* attendance, taking the mean between winter and summer, the increase in the registration is 7 per cent., and in the average attendance 4.68 per cent.

Can any one deny that here is progress? And is not such manifest and rapid progress a good reason for rejoicing and congratulation? We hope in the future to see still more progress. We have no thought of folding our arms, and sitting down at ease to glory over what has been already done. There remains very much more to be done, and nothing but persistent, unremitted hard work will do it. But is there any harm in pausing a few minutes to take breath, and to look back over the way that has already been traversed? This backward glance gives courage and hope for the future. We see plainly that past labors have not been in vain, and we expect to work, and to see the results of work, in the future.

In regard to the Reports of Henry Barnard in 1839, and Seth P. Beers in 1847, it may be said that those Reports were based in part upon actual returns, and in part upon *estimates*. Thus, Mr. Barnard gives the following figures. See his Report for 1839, page 61.

No. of school societies in the State, - - -	211
" " " which have made returns, - - -	167
" " districts in the State, - - -	1,706
" " included in returns of winter schools, -	1,218
" persons between 4 and 16 years, - - -	85,682
" included in school returns, - - -	66,841

A Report so largely dependent upon "estimates" as that first Report necessarily was can hardly be quoted as authority where *exactness* is required. All the *recent* Reports have been based upon returns from *every town in the State*. The report of 1847 was less dependent on estimate than that of 1839, returns being received "from about 200 school soci-

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ties," out of 215, "being a larger number than were ever received in any one year before." It is natural and reasonable to suppose that those making returns were the more wide awake and active parts of the State in educational matters, and that those neglecting to report were below the average of the State at large. At least, so large a percentage as must have been estimated impairs essentially the value of the Report for the purposes of comparison. If the estimates which entered so largely into that Report were correct, it indicates both a relatively larger attendance, and a somewhat greater *regularity* of attendance, than has prevailed for several years past. As to the larger (relative) attendance, it may be said (1.) that many parents now prefer to keep their children out of school entirely until 5 or 6 years of age, whereas it was then far more common to send such children to school; and (2.) manufacturing, and the class of people that now gather in factory villages were comparatively little known a quarter of a century ago, while now a very large proportion of non-attendance and irregular attendance is found in communities of that kind.

The comparison of Connecticut with Massachusetts gives the latter State a decided preëminence over the former in respect to average attendance. The ages of enumeration in Massachusetts are from 5 to 15, which is of very great advantage for purposes of comparison, as the proportion of non-attendants between 4 and 5, and between 15 and 16 years of age is unquestionably far greater than between 5 and 15. Still, with all allowances that may be called for, the average attendance in Connecticut is far too low, and should be elevated. If the article which we have had in view while writing should have the effect of calling attention to the low average attendance in this State, and of hastening on the remedy, all friends of education would rejoice. What methods would prove most practical and effective for accomplishing the much-to-be-desired improvement, is a question for wise and judicious men, both educators and legislators, to consider and answer. Some answer, in a practical form, is imperatively required.

A VICE-PRESIDENT'S VIEWS OF THE TEACHER'S WORK.

During the session of the Teachers' Institute lately held at Clinton, a genial and inspiring address was made by Hon. Lafayette S. Foster, late United States Senator from this State, and for a while Vice-President of the United States after Andrew Johnson became President. The following

short extract from the remarks will be found interesting. It should be said in explanation of the opening sentences, that Secretary Northrop in introducing him, had reminded the audience of the various positions of high honor which he had held.

"I have attended but few Institutes, but those have given me great pleasure. My friend (Sec. Northrop) has dropped a few words in regard to some responsible positions that I have held. He has omitted one yet more important,—one in which I think I did as much good as in any other,—it was that of schoolmaster. Ladies and gentlemen, I am proud of the fact. I did not perform the duties of that position as well as you do. I was not nearly as well qualified as you. It was during the dark days of the schoolmaster. You feel poorly paid; you feel with reason that you are not as much appreciated, not as much respected as you should be. But I have kept school for ten dollars a month and boarded myself, and again for a little more and 'boarded around.' I have been through all the modes and tenses of school-keeping, and learned in teaching more than I taught; for one of the best schools is teaching itself.

"In regard to the character and importance of school-teaching my views may be imagined from what I have said. My advice to you is, respect yourselves to begin with. Do not complain that you are not respected by others, till you respect yourself; you may then hope to win the respect of the community. I am not advising that you should be conceited, nor wise above what is written; nor that you should imagine that the light of the world will go out when you die, and that you must keep it flickering. But you must understand what you teach and *feel* that you understand it, and that you can communicate it to all who have the faculty of receiving.

"Although there is a considerable amount of stupidity on the part of pupils, and of interference on the part of parents, yet there is a great gratification in teaching. Those for whom you are laboring will profit by it when you are passed away and forgotten. Your influence will go on, and on, and on, through all time. It will be perpetual.

"I am here to unite in these services with a great deal of pleasure. The future of our country and of the world depends on this work. A republican government (and this is a remark which we often repeat without being adequately aware of its truth),—a republican government must rest on the intelligence and morality of the people. If they are not intelligent and moral, the government will

blow away and be at the mercy of despots. Nothing less than intelligence and morality combined can establish security. Education alone is not enough. These then are the basis of a republican government; while these are spread abroad through the country, there is hope for all. Blot out one or the other, and disaster and ruin will follow.

"Go on resolutely, all you who are engaged in this work of teaching. On your efforts and success depend the hope of our country, and its power among the nations of the world."

YOUNG TEACHERS' DEPARTMENT

THE TRUE REMAINDER.

BY S. B. FROST.

Example.—Divide 17,864 gallons by $945=3, 5, 7, 9$.

Solution.—Suppose 17,864 gallons to be placed in vessels each containing 3 gallons, there will be 5,954 vessels and 2 gallons remaining. If the 5,954 vessels be put in casks each containing 5 vessels, there will be 1,190 casks and 4 vessels containing 3 gallons each remaining= 12 gallons. If the 1,190 casks be placed in rooms each containing 7 casks, there will be 170 rooms. If the 170 rooms be placed in houses each containing 9 rooms, there will be 18 houses, and 8 rooms each containing 7 casks, each cask containing 5 vessels, each vessel containing 3 gallons= 840 gallons remaining. Therefore the true remainder is 840 gallons + 12 gallons + 2 gallons = 854 gallons.

A very learned solution may be found in the "Schoolday Visitor Mathematical Almanac, 1871," by Artemas Martin, to which the reader is referred. As the explanation of finding the true remainder is insisted upon by some examining boards, it is hoped the above solution may somewhat simplify the subject.

The question has often been asked in the proving of multiplication and division by casting out the nines, why is this so? We reply that this property of the digit nine, as well as the many other curious and interesting properties of the same digit, is purely an *accidental* one peculiar to our system of notation. Nine is one less than the radix of our system of notation, and hence the highest number expressed by a single character. These properties will belong to the highest number so expressed in

any system. While the number nine has some peculiar properties from being next *below* the radix of the system, the number eleven has also some peculiar properties from being next *above* the radix.

MISCELLANY.

They lose a feast of rich things who do not follow the wonderful ramblings of Oliver Wendell Holmes's fancy in "The Poet at the Breakfast Table," now enlivening the pages of the *Atlantic Monthly*. Here is a pleasant little glimpse which he gives us of some of the machinery of a poet's work:

"You'll confess to a rhyming dictionary anyhow, wont you?"

"I would as lief use that as any other dictionary but I don't want it. When a word comes up fit to end a line with, I can *feel* all the rhymes in the language that are fit to go with it without naming them. I have tried them all so many times, I know all the polygamous words and all the monogamous ones, and all the unmarrying ones—the whole lot that have no mates—as soon as I hear their names called. Sometimes I run over a string of rhymes, but generally speaking it is strange what a short list it is of those that are good for anything. That is the pitiful side of all rhymed verse. Take such words as *home* and *world*. What can you do with *chrome* or *loam* or *gnome* or *tome*? You have *dome*, *foam*, and *roam*, and not much more to use in your *pome*, as some of our fellow countrymen call it. As for *world* you know that in all human probability somebody or something will be *hurled* into it or out of it; its clouds may be *furled* or its grass *impearled*; possibly something may be *whirled*, or *curled*, or even *swirled*,—one of Leigh Hunt's words, which with, *slush*, one of Keats's, is an important part of the stock in trade of some dealers in rhyme."

So much for a little of the machinery; now for a touch of the poetic inspiration itself, transforming a creature of no reputation into an enviable fellow:

"Here are my bee-parasites," said the Scarabee, showing me a box full of glass slides, each with a specimen ready mounted for the microscope. I was struck with one little beast flattened out like a turtle, semi-transparent, six-legged, as I remember him, and every leg terminated by a single claw hooked liked a lion's and as formidable for the size of the creature as that of the royal beast.

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"Lives on a bumblebee, does he?" I said.—That's the way I call it. Bumblebee or bumblybee and huckleberry. Humblebee and Whortleberry for people that say Woos-ses-ter and Nor-wich."

"The Scarabee did not smile; he took no interest in trivial matters like this.

"(Lives on a bumblebee. When you come to think of it, he must lead a pleasant kind of life. Sails through the air without the trouble of flying. Free pass everywhere that the bee goes. No fear of being dislodged; look at those six grappling-hooks. Helps himself to such juices of the bee as he likes best; the bee feeds on the choicest vegetable nectars, and he feeds on the bee. Lives either in the air or in the perfumed pavilion of the fairest and sweetest flowers. Think what tents the hollyhocks and the great lilies spread for him; and wherever he travels a band of music goes with him, for this hum which wanders by us is doubtless to him a vast and inspiring strain of melody.) I thought all this, while the Scarabee supposed I was studying the minute characters of the enigmatical specimen."

THE WAY TO SUCCEED.

Fortune, success, fame, position, are never gained but by piously, determinedly, bravely, sticking, growing, living to a thing till it is fairly accomplished. In short, you must carry a thing through, if you want to be any body or anything. No matter if it does cost you the pleasure, the society, the thousand pearly gratifications of life. No matter for these. Stick to the thing and carry it through. Believe you were made for the matter, and that no one else can do it. Put forth your whole energies. Be awake, electrify yourself, and go forth to the task. Only once learn to carry a thing through in all its completeness and proportion, and you will become a hero. You will think better of yourself; others will think better of you. The world, in its very heart, admires the stern, determined doer. It sees in him its best sight, its brightest object, its richest treasure. Drive right along, then, in whatever you undertake. Consider yourself amply sufficient for the deed. You'll be successful.—*Exeter, N. H., News Letter.*

The University of Nebraska, located at Lincoln, the capital of the state, has an endowment in lands that will soon be worth a million of dollars. This year the state has expended seven thousand dollars on the nuclei of its library, cabinet, and apparatus.

THE METRIC SYSTEM.

In the New York Evening Post of March 7th, we find a valuable article from the pen of Prof. A. M. Mayer, Ph. D., of the Stevens Institute of Technology, setting forth the advantages of the Metric System of weights and measures. The article is founded on the recent revised edition of a work by President F. A. P. Barnard, of Columbia College, which is described in its title as "The Metric System of Weights and Measures: an Address delivered before the Convocation of the University of the State of New York, at Albany, August 1, 1871." We regret that the length of Prof. Mayer's article prevents us from giving it in full, but perhaps some idea of what it contains and of the value of the work upon which it is founded may be obtained from the extracts which we make. After affirming that it is of little consequence whether the meter or yard is the most "natural" or "religious" unit of measurement, Prof. Mayer goes on to give the positive advantages of the meter as follows:—

But, what is of consequence is (1) that when the unit has been once established it should remain of a constant value, and should permit of being readily copied with an exactness which will render any error it may possess insignificant in any measurement to which it will be applied; (2), that it should be of a convenient length; (3), and should be divided in a manner that conforms to the system of numeration and computation of the people who daily use it. (4), Also this unit of length should have a simple relation to the units of weight and capacity by making these latter contain the weight and measure of one cubit unit of water at a determinate temperature; and (5) finally, if possible, the weight of the unit of gold coinage should bear a simple relation to the unit of weight.

Both the yard and the meter exist as unit-bars from which copies have been made with great exactness, so that, if either standard were lost it could be reproduced from the copies without appreciable error. The yard and the meter are also equally convenient both to carry and to stretch, the meter being only about 3.4 inches longer than the yard. But the advantages in all the other requirements above mentioned are in favor of the meter; for this is decimally divided, thus conforming to our system of numeration; and since notation and computation in decimal fractions are but the natural extension of our system of numeration and coinage division, both measure and computations in meter fractions are executed with greater rapidity and certainty. As an example, I take a yard-stick and measure my room, and find it 5 yards 9 inches and 5.16 inch wide, and 6 yards 1 foot 1 inch and $\frac{7}{8}$ inch long. I now take a meter-stick, and find for the width 4.808 metres, and for the length 5.813. We wish from these measures to find the area of the floor in square yards and in square meters by multiplying the width by the length measure. Let

the reader perform this operation in the English measures and then in the French, and time accurately each operation. The result will convince him of the superior rapidity and certainty of the metric computation.

If the advantages of the metric system are at once apparent when applied to the determination of an area, yet more evident is its superiority over the English system when we compare them in an application to the determination of a capacity. And the advantages of the metric system do not stop here, for as its units of weight are equal to the weights of units of capacity of water, it follows that a French engineer has instantly the weight of a stone or structure of masonry when he knows its volume and its specific gravity; whereas the English engineer has to reduce his measure of volume to cubic feet and fractions of the same, to multiply them by $62\frac{1}{2}$ (roughly speaking), and the product by the specific gravity of the stone. Such operations as we have instanced are of hourly occurrence among all the men who are now advancing in civilization by the application of science, and why should such a practical people as the American waste time in such indirect processes as are required in all applications to the arts of the English system of weights and measures. In the language of the Yale Naught-ical Almanac, "overcome by the influences of New England birth," Elihu Burritt calculated how much time was wasted in England by introducing the *u* into such words as *favour*, *honour*, &c. It would be really worth the muscle to drive the Albany Observatory calculating engine to a result giving the number of lives (in time) spent from using the English measures of weights instead of employing the metric system. Evidently the mental economy of the nation demands that the latter should displace the former system.

After giving an appreciative review of the address itself of Prest. Barnard, in which the answers of the latter to the almost puerile objections to the metric system, published by a member of the former convocation committee on a uniform system of weights and measures, are clearly presented, Prof. Mayer's article concludes as follows:

Not the least valuable part of this work of Dr. Barnard is the "Note on the Unification of Moneys," forming Appendix A: "To touch an interest of such vast magnitude as the coinage, of the world is a thing which to be done safely must be done cautiously," for the world's existing coinage amounts to three thousand millions of dollars. Our space will not permit us to do justice to Dr. Barnard's comprehensive discussion of this important international problem, for we are convinced from a careful study of it that it is the clearest and most reliable exposition of this subject ever published in America. It must suffice to give the following abstracts: "It is an opinion easily taken up upon a *prima facie* view of the subject, that the pound sterling of Great Britain, the dollar of the United States, and

the franc of the French Republic, might, by the simplest process of legislation in the world, be reduced to a regular geometrical series of values. Hence, therefore, it is probable that everybody, who knows anything about these important national money-units and the relations in which they stand to each other, has often said to himself, in the language of one of the resolutions reported to the Convocation of the University of the state of New York, by this committee on weights, measures and coinage, that "such changes should be made in the values of the franc, the dollar, and the English pound sterling, that twenty-five francs be exactly equal in value to one pound sterling." It was surely not an observation so little profound as this, that the Convention had a right to expect of their committee. Considered as help toward the attainment of the desired uniformity of currencies, it rather reminds one of good Mrs. Nickleby's very practical suggestion to her embarrassed husband: "My dear Nicholas," said the excellent lady, "why don't you do something? Why don't you make some arrangement?" * * * . The sundry international conferences which have been called during the last fifteen years to consider this subject, have not wasted breath in axiomatic propositions and empty generalities, but have given all their collected strength to the study of the knotty problem, *how* this thing is to be done. The solution of this problem is considered by the ablest publicists and profoundest financiers of all nations to be one of the most perplexing with which legislation has to grapple."

Dr. Barnard in this appendix clearly states the difficulties in the road to a speedy adoption of one international coinage. There are many, the fundamental being that in France and the United States both silver and gold are standard metals, while in England only gold is the standard, while the real silver standard coin (the franc of nine parts of pure silver to one of alloy, of a weight of five grammes) has actually ceased to exist, the present silver coinage of France being a debased coinage; and this is nearly the case in the United States for silver coins below the silver dollar. Therefore, before the solution of the problem can begin, the nations have to decide whether gold or silver shall be the standard. Another difficulty in the way is the diversity and variability in the standard of fineness.

President Barnard closes his discussion with these suggestive considerations: "If Germany has failed to grasp the favorable occasion for reconciling the conflicting monetary systems of Europe, she has nevertheless brought order out of the confusion of her own. Henceforth, in reference to this matter, she contributes but a single element instead of many to the general discord; and permits us to say that the number of the inharmonious elements which, in studying the question of unification, we are compelled to consider is practically reduced to these four: the mark, the franc, the pound sterling and the dollar. The relations which these bear

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to each other, as presented in the weights and values of their characteristic gold coins most nearly approximate, are given here—the weights being expressed in grammes and milligrammes, and the values in the currency of the United States:

Country.	Coin.	Weight pure gold.	Weight standard gold.	Value.
Germany,	20 mark piece	7.168	9.965	\$4.764
France,	25 franc piece (proposed)	7.258	8.065	4.824
Great Britain,	Sovereign	7.322	8.136	4.865
United States,	Half eagle	7.523	8.359	5.000

In this exhibit we have the whole case immediately under the eye. Till Germany intervened the widest range of difference between the representative coins of the systems which it seemed most important to reconcile, was less than eighteen cents. She has extended it to nearly twenty-four.

The very hopelessness of the case in the aspect here presented imposes upon the four great powers above named the obligation to lend their most serious attention to every alternative possibility of relief which may be suggested; and, in the actual state of things, it is eminently well worth their consideration, whether present effort should not be directed toward the creation of a coinage for international use on a plan entirely independent of all local and purely national systems. Such an international coinage, though not in strictly commensurable relations with the coins now actually in use, would be productive of the great benefit of immensely simplifying commercial exchanges, and of providing travellers with a currency everywhere invariable in value. The advantages which its introduction would bring with it, are to some extent even now actually enjoyed throughout a large part of Europe, in consequence of the extended circulation which the gold Napoleon secured beyond the limits of the French territory. But though it circulates freely all over Germany, Austria, Holland, Denmark and Sweden, it circulates only by toleration, and because of its great convenience; and is not a legal-tender for payments of any amount in any of those countries.

"The international coinage here suggested will command, if established, an immediate circulation among all the peoples who shall unite in its creation, and will bring with it greater advantages than have attended the continental circulation of the Napoleon. The existence of such a coinage will, moreover, keep constantly before the minds of all those who use it the desirability of a currency which shall be not only international, but everywhere uniform and identical. Thus the proposed coinage may become a powerful instrumentality in promoting the attainment of the object for which it seems at first to be only designed as a substitute, the ultimate complete unification of the monetary systems of the world."

"An international coinage devised without reference to systems actually existing, and controlled in its principles by no considerations of what may be their discord-

ances or resemblances, may be, moreover, constructed on a strictly scientific plan, and thus, when time shall have familiarized the nations with its values and its visible forms, it may happen that without violence, and by the spontaneous action of people themselves, diversity may silently give place to uniformity, and a better system than any which present legislation could create, may ultimately prevail throughout the world."

PENNSYLVANIA DUTCH.

It is well known, we suppose, that in certain parts of Pennsylvania, there is now in common use as vernacular, a sort of language known as Pennsylvania Dutch. So far as we have met it both in conversation and in print, it has seemed to be a corrupt kind of German, perhaps of a dialect of the German and formed, to a certain extent, by the union of the two languages, English and German. The following specimen of this language has through the kindness of a friend found its way into our office. As will be seen the subject matter is simply an apothecary's advertisement; but as affording means for philological study, not less than as a curiosity, it may perhaps be worthy of the space which it occupies. We abstain from all attempts to examine any of the words critically, or trace any from their origin to their present form, leaving that for any who may be interested in the subject. At the risk of falling into error we have appended both a German and an English translation.

GOOK YUSHT AMOHL DOH.

MONSLEIT UN WEIBSLEIT!!

BUWA UN MÆD—YUNGY UN OLTY,

ATTENTION!!

DER EAGLE DRUG SHTORE!

DER BESHT UN DER WHOLFEALSHT!

— — — — —, OBBADEAKER.

IN DER DRITT SHTROSE, SUED BETHLEHEM.

Olsfort uf hond, olly sorta fun de beshty Drugs un Meditziena, un on de wholfealshty prices. Also, PAINT, OEHL, GLAWS, VARNISH, &c. Mer hen aw an neier article dos gor net gebutta konn wærra; es is de bareemt

"SALTED SODA"

un wærd g'used for seaf kocha. Prowiers amohl—de directions we mers braucht geana mit.

Om Eagle Drug Shtore is aw der platz for PATENT MEDITZIENA, BITTERS, &c., &c., &c., Fun olly ort, un on de wohlfealshty prices. Also, COAL-OEHL, LOMPA, WAUGA SHMEER, &c., &c.

Now mind was mer sawya; mer hen olles uf hond was mer denka konn in unser line of bisness. We g'sawt, unser prices sin wholfealer dos in ennichem onnera Drug Shtore im County. Ferges't net der platz,

IN DER DRITT SHTROSE UNNICH DER LOCUST, SUED BETHLEHEM.

Now is de tseit ; macht eich bei, un judg'd for eich selwer ; kummt in foor weasa, uf horse back, uf em Railroad odder tsu foos—mer sin gor net particular wie, yusht so dos der kummt on

DER EAGLE OBBADEAK IN SUED BETHLEHEM.
Un bringt eier greenbacks mit. Wholfeal for Cash—sell is unser style.

August 28, 1869.

OBBADEAKER.

GUCK'T NUR EINMAL HIER!

MAENNER UND FRAUEN!

BUBEN UND MAEDCHEN—YUNGE UND ALTE,

AUFMERKSAMKEIT!

DIE EAGLE APOTHEKE!

DIE BESTE UND DIE WOHLFEILSTE!

APOTHEKER.

IN DER DRITTEN STRASSE, SUED BETHLEHEM.

Immer zu haben, alle Sorten von den Besten Droguen und Medicinen, zu den wohlfeilsten Preisen. Auch Farben, Oele, Glass, Lack, etc. Wir haben auch einen neuen Artikel, welcher gar nicht geboten werden kann ; es ist das berühmte

"SALZ SODA"

und wird gebraucht zum Seifen-Kochen. Probiert's einmal—die Gebrauchs-Anweisung, wie mann's braucht, geht mit.

In der Eagle Apotheke ist auch der Platz für PATENT MEDICINEN, BITTERN, &c., &c., &c., von allen Arten und den wohlfeilsten Preisen ; auch, KOHLEN-OEL, LAMPEN UND WAGENSCHMIERE, ETC.

Nun merkt Euch was wir sagen, wir haben alles vorraethig was man in unserem Geschäft nur denken kann. Wir sagen, unsere Preise sind wohlfeiler als in irgend einem andern Apotheker Laden des Countys. Vergest den Platz nicht,

IN DER DRITTEN STRASSE, UNTERHALB DER LOCUST,
SUED BETHLEHEM.

Jetzt ist die Zeit ; macht euch herbei und urtheilt selbst ; kommt herein in Fuhrwerke, zu Pferde, auf der Eisenbahn, oder zu Fuss—wir sind gar nicht eigen wie, nur dass Ihr kommt,

ZUR EAGLE APOTHEKE IN SUED BETHLEHEM.
Und bringt Eure Kassenscheine mit. Wohlfeil für baar Geld—das ist unsere Art.

APOTHEKER.

ONLY LOOK HERE ONCE!

MEN AND WOMEN!

BOYS AND GIRLS—YOUNG AND OLD,

ATTENTION!

THE EAGLE DRUG STORE!

THE BEST AND THE CHEAPEST!

APOTHECARY.

IN THIRD STREET, SOUTH BETHLEHEM.

Always on hand all sorts of the best Drugs and Medicines, and at the cheapest prices. Also, PAINT OIL,

GLASS, VARNISH, ETC. We have likewise a new article that cannot be beat, it is the celebrated

"SALTED SODA"

and is used for soap boiling. Try it once—the directions how to use it go with it.

At the Eagle Drug Store is likewise the place for PATENT MEDICINES, BITTERS, &c., &c., &c., Of all sorts, and at the cheapest prices. Also, COAL-OIL, LAMPS, WAGON GREASE, ETC., ETC.

Now mind what we say ; we have always on hand whatever can be thought of in our line of business. We say that our prices are cheaper than in any other Drug Store in the County. Do not forget the place, IN THIRD STREET BELOW LOCUST, SOUTH BETHLEHEM.

Now is the time ; give us a call and judge for yourselves ; come in wagons, on horseback, by railroad or on foot—we are not particular how, only so that you come to

THE EAGLE DRUG STORE IN SOUTH BETHLEHEM,
And bring your greenbacks with you. Cheap for Cash—to sell is our style.

APOTHECARY.

NATURAM GAS FOUNTAINS.—In a paper recently read before the N. Y. Association of Practical Engineering, Prof. H. Wurtz gave the following account of natural gas-wells :

It appears that in the State of New York alone there are three great belts of gas-bearing formations, each two hundred miles long, an average of ten broad and having a thickness estimated at one hundred feet. This would support three thousand wells, yielding gas equal in heating power to fourteen tons of anthracite daily, for one hundred years. Similar formations are found in Canada, Ohio and Pennsylvania, but perhaps the most important is the immense area of the Devonian and Silurian basins of the Great Lakes and the Mississippi Valley, where there are five, perhaps six, great beds of such rock.

Some of the gas wells give a most enormous quantity of gas. One on the Little Kanawha, nine hundred feet deep and four-inch bore, has a two-inch pipe leading from it a distance of a mile, where it feeds the furnaces of twenty-eight steam boilers of twelve-horse power each, besides fifty stores and a large number of jets for illumination. There is one in Ontario county, N. Y., 500 feet deep and five inch bore, which gave a flame thirty feet high, the flow of gas being about five cubic feet per second, or upwards of 430,000 per day. The gas is nearly equal to six-candle power. At Venango, Pa., gas rises from wells under a pressure of two hundred pounds to the square inch, and instead of being burned under a boiler is run direct into engine cylinders in lieu of steam. At Erie, Pa., wells can be sunk for \$1,500 which will give gas enough, burned in the furnace of a steam generator, to produce 200 horse power.

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THE CONN. SCHOOL JOURNAL.

NEW HAVEN, APRIL, 1872.

EDITORIAL.

A peculiar and very abrupt method of disciplining children has been for some time in use in some families. It seems likely now to be experimented on largely, if not extensively adopted, since it is having the run of the newspapers. When it appears in so excellent and respected a periodical as *Hearth and Home*, we think it is about time to give it a little serious attention. It is presented in these words in the paper above mentioned, under date of March 2nd:

"DASH IN!" We once heard of a way by which a mother broke her children of a habit of crying. As soon as they began to cry, she would dash a little cold water into their faces. A few repetitions of this process effectually checked their lachrymose tendency. The remedy is at least worth trying, for it can do no harm, and a habit of 'whimpering,' contracted in childhood, may last through life."

We apprehend that the expression "it can do no harm," appended with the best intentions to many suggested remedies or experiments, has been itself productive of very much harm. The number of inert things in life, is far smaller than would appear at first sight. If a thing is not clearly and positively beneficial, it is rarely safe to assume that it is at any rate harmless, for the probabilities, in case of its failing to produce a good effect, are decidedly in favor of its doing injury.

"Try Mrs. Winslow's Soothing Syrup," says a friend to a mother, "at any rate it can do no harm;" "confide to Miss —," says another, "your convictions that she has made a sad mistake in the engagement with so unpromising a young man; it may be of service to her and can do no harm;" another advises his friend to take his wife, wasting away with consumption, to the bracing air of the Rocky Mountains, with the stereotype remark that if it does not benefit, it cannot hurt her. Yet in each of these cases, harm has resulted,—the sensitive child has been over-opiated by the syrup, and never opened its eyes again; the young lady has been so hurt and soured by the interference with her matrimonial arrangements, that the quality and warmth of her friendship has been impaired for life; the unpromising young man meanwhile proving so good a husband, that there is not even the comfort

of feeling that the counsel was sagacious; the husband has dragged his dying wife from the Atlantic sea-board by an immensely tedious journey to the summit of the Rocky Mountains, only to become instantly aware, that while the fatigue alone was shortening her life, the effect of the strong mountain air so suddenly introduced into the lungs was at once fatal; the husband was thus left the victim of a fatal experiment, with the remains of his wife on his hands among total strangers, two thousand miles from home.

We would therefore suggest the propriety of being more careful than heretofore, in asserting the harmlessness of experiments. That it may often be truthfully assumed, is not to be denied, but as a general thing it is safer to be on our guard against possible ill-consequences.

The instructions given to engineers on some of your best-managed railroads, are never to take for granted that things are right, ahead. When bringing their trains up to the best regulated stations, it must be on the supposition that every switch is wrong, that there is a group of children on the track, and that there is another train approaching from the front, upon the same rail. It is only as he regulates his train under the hypothesis of dangers, that he can be called a safe engineer. We may learn a lesson from this, in respect to matters affecting the training of human beings.

Considering now this particular matter of cold-water discipline; if it is good and effectual in the family, doubtless it would prove such in the school. At least it is quite certain that many teachers might so esteem it, for in general, the discipline of a school is only transplanted from the household. In that case we might have, not only cold water hygiene, but cold water discipline, prevalent around us. Pails of water might adorn the entries of school-houses, not for extinguishing fires, as an unsophisticated visitor might suppose, but to extinguish inflammatory risings of passion in refractory pupils. "Dash him!" would be the unfailing resort of the teacher unfertile in resources; and we can well imagine the glow of satisfaction, coursing to the finger ends, with which she would dash some great imaginary lout, too strapping for her to handle. Perhaps a neatly contrived shower-bath might concentrate this style of discipline into its most effective shape, and become the indispensable adjunct of every school-room.

But seriously, are there not some considerations in this matter of aqueous discipline, which should make our periodicals, whose word carries weight,

hesitate to advise it, and parents hesitate to adopt it? It is an unnatural remedy, savoring more of rough, barbarous life, than of well-mannered civilization; it is untidy and inconvenient, this dashing of water around the person; and more than all, the nervous shock produced, upon which its virtue depends, is of a very sudden, concentrated, and often injurious kind.

There is a great difference in the capacity of different persons to endure this water shock. While many will simply *suffer* by it, as from a blow, others are so constituted that a serious disturbance is thereby produced in the nervous system. There are those who cannot endure the sudden dash of a shower-bath. Few who have not specially studied these effects, are aware how powerful is the effect of these sudden applications of water; but we all know that in our prisons, they now constitute a form of punishment amounting so nearly to torture, that they will not be likely to stand before the pressure of public sentiment much longer. The most hardened villains will fall on their knees in supplications to be delivered from the punishment of the shower-bath.

We believe there is much danger of doing serious injury to many constitutions by even the more temperate use of this remedy,—and as a general resort, in the hands of hasty disciplinarians, its results would be sad indeed.

Within our own knowledge, one family, that of a distinguished professor, in which the children were dashed with cold water for ill temper, is terribly afflicted by epileptic fits, which have made a wreck of a very intelligent daughter. In point of fact, there is in this case every reason to believe these fits the result of a sickness in childhood, but the community are quite disposed to attribute them to the cold-water discipline. That they *might* result from this in rare cases is perhaps possible, as other injuries certainly could; and to be liable to the suspicion of having effected these, to say the least, is not pleasant.

Our advice would be that, instead of trying the hydropathic discipline as at least a harmless experiment, we should think long and well before venturing upon it.

— Forty-three graduates of Williams College, belonging to different classes from 1815 to 1863 have been at different times professors in Colleges. Of this number, twenty-seven are now professors, nine of them being in Williams.

MANNERS.

There are many teachers, it is to be feared, who would give thankful heed to suggestions as to their *manner* of dealing with school-work, who would scorn to give the word a thought if it were but lengthened with an "s." To them, "manners" is a flip-pant fantastic word, well enough in its place, but not needed in their neighborhood. They do not imagine that it ever has a place among useful things; but suppose that it is a toy, to be classed among such splendid trifles as balloons—to be enjoyed by those who have nothing better to do than to sport over them, but not to be meddled with by poor practical bread-seeking teachers; or as jewelry, to grace the habits of soirees and ball-rooms, but not needed in sober work. This is very plainly a mistake, and a very unfortunate one for them. If possible, let such crude, and really thoughtless ideas of what society rightfully demands of true manhood, be put away with other "childish things;" and let every teacher hitherto too much above these social trifles to give them any attention, descend from this conspicuous position of unrefinement to the only sensible level of a well-mannered citizen.

It is an axiom in human affairs, that things little enough in themselves, are not to be despised or neglected, provided that they should happen to be the pivots about which victory or defeat in great undertakings may turn. Pivots are generally very insignificant things, but great enterprises may depend upon them.

The importance of good manners to every one seeking to do any public work, is hardly to be regarded as an open question. The great leaders of educational thought and æsthetic culture have long ago decided this unanimously. The cultivation of good social manners is both a *duty* and a power; their neglect is thoughtlessness, weakness, and not infrequently, defeat.

Our time need not therefore to be spent so much in arguing this matter, as in impressing its importance earnestly and affectionately upon our young teachers. The following points commend themselves to our notice.

Indifference to this matter generally decides the question the wrong way. If you are not striving to express yourself in delicate, thoughtful, well-mannered ways, you probably are rough, uncouth, ill-mannered. Allowing one's self to *drift* in this respect, is only a little slower in its injuries than steering directly for the rocks.

It is the more important that we should look well to our individual status, because the sectional or national habits in which we have been brought up are so apt to mislead us. In fact it is sad to have to remark in this connection, that to do our full duty in social deportment, we must force ourselves to rise above our national habits; we must *teach*, and not imitate our national usages in this regard.

We ought to mark the astonishing diversity among nations as to ease, gentleness, considerateness, refinement of social address. In England, doubtless, there is among the educated classes, a somewhat larger amount of social refinement and of courtesy than yet prevails in our new country, which has not yet thrown aside its pioneer buckskin. Yet owing to the certain natural gruffness, and a prevalence of *caste*, the standard of outward courtesy is far from high. Even where inward refinement exists, you have, in meeting an Englishman, to break through a crust to get at it.

Pass over the English Channel, and you will come to a nation which is all "manners." A Frenchman is thoroughly courteous whenever he has perfect mastery of himself, and he is the model for courtesy the world round. Whatever may be the origin of this politeness so imbued in this whole nation, its chief charm is, that it is perfectly natural; that is, the various little methods of showing kindly feeling towards utter strangers and friends, are precisely those which a heart overflowing with kindness would suggest to one of refinement and simplicity of character. You enter a French café; at the door you meet a Frenchman passing out; an Englishman or an American would only choose between an impertinent stare, a haughty pushing by, in apparent unconsciousness of the presence of any other human being, with eyes fixed on some object in the street, or in case of choicer breeding, with a mild but utter indifference to the stranger coming in. The Frenchman, however, unable to forget that the incomer is a man and a brother, even if he be a stranger, lifts, politely, his hat, yields more than a share of the passage way, and then passes on, sure that he can have left no unpleasant remembrance on your mind.

If the French were as princely in other matters of self-culture as they are in manners, they would not now be struggling to regain their late standing as a "first-rate power." While we may feel without any boasting, that they can learn from our republic the fundamental principles of self-government, we must acknowledge that we have need to learn of them the common lessons of civility.

And so we come back to the sad reflection that our national habits do not help us much in this direction. A writer has recently expressed the truth so much better than I can, that I will quote her words. "As a nation, are we not less polite than intelligent? Is not the American mind deficient in courtesy and reverence? With 'excelsior' for a motto, each is elbowing his way upward, too regardless of everything that does not afford a stepping stone to the wealth, influence, reputation and power, which he covets. Can we wonder that *Young America* is fast? We feel this deficiency in the home circle, and out through all the ramifications of society and government." It is mostly then by resolute individual effort that we shall bring ourselves to any reasonable excellence in social deportment.

Lord Bacon said with much truth, "not to use ceremonies at all is to teach others not to use them again; and so to diminish respect to himself; especially they should not be omitted to strangers and to formal natures." Another of his remarks is also very pertinent here, "certainly custom is most perfect when it beginneth in young years."

Attention to manners being thus important, it must be especially encouraged in our nation which herein lacks greatly. And courteous habits being most perfectly developed when begun in young years, such training should be promptly brought to bear upon the children of our schools.

This important duty then comes home to every individual teacher. Each one is actually doing a wrong to his pupils in setting them a bad example in his own person, of manners, or in failing to discipline them every day in this respect. Yet to be able to teach, he must first learn himself.

Exhibitions of courtesy, or of tasteful deportment, may perhaps be crudely classified into those springing not from any local rule, but from the general spontaneous expression of a gentle soul within; these are appropriate everywhere; also into those which are simple, conforming to social customs, varying with nations and communities. To the first class it is a moral duty, to the second, an act of the wisest discretion, to apply one's self.

It was a violation of the first kind, that was shown by one of our teachers not long ago; on receiving a visit from a lady, resident in the place where she was teaching, and who had shown her some attention during a late illness, she did not even show enough of that natural courtesy which is the child of a truly loving heart, to rise from her chair to greet her visitor. With no possible excuse, and

without the suggestion of any apology, she allowed her kind friend to come and to go, while she calmly greeted her and bade her farewell, herself all the time seated as calmly as though she were Queen Victoria on her throne, receiving the obeisance of subjects.

Instances of violations of the second class mentioned are too common to need illustration;—such as violations of customary proprieties in answering notes of invitation,—of conduct at meals, &c.

Teachers are ever models to their pupils, and should therefore for the sake of the thousands moulded by them, study carefully these courtesies and proprieties of life.

The best way to cultivate the best manners is, probably, first to have a good warm generous hearted *love* for everybody; true courtesy, true gentleness, is only love expressing itself. And secondly, to observe very closely the habits of those who are confessedly models in this respect.

Let teachers cultivate carefully, gentleness, courtesy, deference, in themselves and their pupils, and there will be great results. There will be fewer bores elbowing their ways haughtily through our streets; fewer conductors and ticket-agents who answer necessary questions with curt insolence, and then slam the window home in your very face, fewer young men and women who will chat buzzingly at your very ear all through Nilsson's concert, for the enjoyment of which a half eagle has left you forever.

Connecticut may well be proud of the honor just paid to one of her most loyal and most eminent men. The gift of the Wollaston Gold Medal for 1871, by the Geological Society of London, to Professor Dana, is nothing short of a pre-eminent token of distinguished merit. It requires an extraordinary degree of merit to elicit unqualified approbation from European sources towards any one on this side of the Atlantic; and especially from English sources. It therefore means a great deal when in the awarding of the medal, the President of the Society, Mr. Joseph Prestwich, said, among other words of approval, "I beg to express the great gratification it affords me that the award of the council has fallen on so distinguished and veteran a geologist. Prof. Dana's works have a world-wide reputation. Few branches of geology but have received his attention. An able naturalist and a skilful mineralogist, he has studied our science with advantages which few of us can boast. His contribu-

tions to our science embrace cosmical questions of primary importance—paleontological questions of special interest—recent phenomena, in their bearings on geology, and mineral investigations so essential to the right study of rocks, especially of volcanic phenomena."

Mr. David Forbes, in replying to the president said, "It had rarely if ever occurred in the history of the society, that the Wollaston Medal had been awarded to any geologist who had made himself so well known in such widely different departments of the science; for not only was Prof. Dana pre-eminent as a mineralogist, but his numerous memoirs on the crustacea, zoophytes, coral islands, volcanic formations, and other allied subjects, as well as his admirable treatise on general geology, fully testify to the extensive range and great depths of his scientific researches."

The medal, which has arrived in New Haven, is an exceedingly beautiful one, as might be expected from its origin. There has been abundant recognition however in Europe, for many years, of Prof. Dana's merits; his Mineralogy, we believe, on its first issue, gave him at once a leading European reputation. About sixteen years ago an elegant portfolio was published in Austria, containing the portraits, in the finest steel engraving, accompanied by letter press giving biographical accounts of the hundred most eminent men in the world. Prof. Dana was one of the two selected from this country. The work was limited to one hundred copies, two of which are in the library of Yale College.

Prof. Dana is not only an eminent man of science, but an educator in the highest sense of the word. As a practical teacher he always enriches and inspires his pupils. As an educational organizer he has on various occasions proved himself a master.

There have been times when Connecticut has well nigh lost this distinguished professor. She is in danger of losing others of high reputations, from her schools of learning, unless she bestirs herself and makes it more for their interest to remain. This is a good time for her public men to look around and see what can be done to show honor to those who so well deserve it, and whom she cannot afford to lose from her educational ranks.

An interesting article will be found in our miscellaneous department, in regard to a peculiar dialect extensively used in Pennsylvania. In the article alluded to, it is called the "Pennsylvania

Dutch;" the writer probably uses this expression in deference to popular usage; for our people strangely confound the Dutch and the Germans. Everything German is in popular slang called Dutch, and every German becomes a Dutchman. It is to be hoped that our teachers may successfully set the example of correcting this not very creditable confounding of terms.

This dialect then, popularly called Pennsylvania Dutch, but unless we are quite at fault, really a variety of the German, is a most singular affair. It is the prevailing language of daily intercourse in a large part of Pennsylvania; business is transacted by it, sermons preached in it, and trials carried on by it in the rural districts and in many towns not far from Philadelphia, as well as in remoter parts of the state. In large sections of Pennsylvania, the great masses of the people are acquainted with both English and this mongrel German, but converse by preference and far more fluently in the latter; in very many villages of the state, the Sabbath services are held alternately in this dialect and in English, while in other places the English service is only exceptionally held. Apparently the people are much of the time unaware in which language they are conversing; while talking with one another they will glide alternately from one to the other, seemingly without any purpose or reason.

We once attended an ecclesiastical trial at a village near Pottstown, Pa., which was commenced in English; but the members of the examining council, the witnesses and the defendant dodged back and forth most provokingly between the two strings to their linguistic bow, to the utter confusion of outsiders.

This dialect is a very strange corruption of the German, and always freely sprinkled with unchanged English words, which gives it a very comical effect to one not thoroughly used to it.

We believe that all attempts to reduce it to grammatical system have failed, as also did an endeavor made some years ago to prepare a Bible in its mongrel terms.

A question of interest and of practical importance will be found under discussion in two of our leading articles in this number. It is in regard to the proper method of estimating the average attendance upon public schools. To those not conversant with all the complications of this question it doubtless may seem to be a very simple thing. They will, however, arise with a very

different view of the matter, from the able paper of Rev. J. G. Baird, which has been called out by the well-put criticisms of Mr. D. P. Corbin. One valuable result always follows the development of facts on such a subject as this; the public is made clearly to see that no data of any reliable quality—fit to be made the basis of improvements in educational laws or regulations, can be made where everything is left to the option or courtesy of local officials. To secure results of any high degree of value the State authorities must be empowered to establish the principles or prepare the formulas, by which the local officials are to be guided in drawing up statistics. Probably the highest results cannot be obtained until our National Bureau of Education is able under the great central power of our government, to impose uniform and suitable regulations in his matter upon all school officials throughout the country. This is one point of no small value to be presented to those who fail to see the advantage of our National Bureau. It is of no less importance to those who control the great educational organizations of the day, to have the most complete and accurate tables of statistics, to be used in deciding upon modifications of present systems, than it is for insurance companies to have such tables as the foundation for their successful work.

We have received from Mr. James Vick, florist, of Rochestor, N. Y., his elegant flower chromo for 1872. Mr. Vick goes into flower culture *con amore*, and is such a favorite with the public, that the number of seeds now sent forth annually from his establishment is simply immense. We have used them for years, and can testify to the excellent satisfaction which he always gives his customers. He is now issuing every year, having commenced in 1870, one or two large chromos, artistically arranged, very correct as to form and coloring, and giving quite exact representations of certain choice varieties of flowers. Each flower is numbered, and its complete name can be ascertained from an accompanying card. These chromos are sold at a very low rate, considering their excellence; they would be very acceptable in the schoolroom, both as ornaments, and as aids in the study of botanical structure.

— The philosophical instruments of Stewart College, Clarksville, Tennessee, destroyed during the war, are being replaced by others of superior construction.

ANNALS OF EDUCATION.

BIRMINGHAM.

The Teachers' Institute held in this place, from the 7th to the 9th of March, was a very pleasant success. The exercises were held at the Congregational church in the evening, and at the high school in the day time. About one hundred and seventy-five teachers were present, and gave good attention to the instructions of the session. The *Derby Transcript* says of this meeting: "This has been on the whole a sort of epoch in the educational records of the town. The weather though cold, has been favorable, the hospitality of the people generous, the exercises varied and interesting, and the audience pleased, and it is impossible but that the cause of education should have received a new and higher impulse."

MIDDLETOWN.

Mr. G. Brown Goode, curator of the cabinets, Wesleyan University, is in Bermuda on business connected with his department. He reports flattering success and excellent prospects for securing a large collection of tropical animals and plants for the cabinets in Judd Hall.

Fourteen Wesleyan students have been engaged in teaching during the winter.

Dr. Johnson has lately revised his Chemistry, and adapted it to the present requirements of a text-book on that science. The *eighth edition* of the work is just published. We understand that two other members of the faculty are engaged in literary labor, and hope soon to announce the works in preparation.

CLINTON.

No Teachers' Institute this season seems to have given greater satisfaction to the community visited than the one held in Clinton, March 21-23. The beautiful Morgan school building was opened for the various meetings of the institute, and liberal provisions were made by the citizens for the entertainment of teachers. Among the more distinguished speakers present were Gov. Jewell, Hon. L. S. Foster, late Vice President of the United States, Judge Elisha Carpenter, Prof. T. A. Thacher, and Hon. H. M. Cleveland. Sec. Northrop's management of this institute was warmly praised by those in attendance. We give in another column a most interesting extract from Judge Foster's address.

WESTPORT.

The Teachers' Institute held in this place, March 14-16, was an occasion of much interest. The able and

genial management of this series of meetings by Sec. Northrop, the generous hospitality of the citizens of Westport in entertaining teachers from out of town, the presence of Gov. Jewell and Prof. Thacher, of the State Board of Education, and the admirable work done by the numerous instructors and lecturers, all contributed to make this one of the best educational meetings of the season. The number of teachers and school officers in attendance was 187. Large audiences were present both at the day and evening sessions.

KILLINGWORTH.

The good people of this town, owing to their scattered condition, find it a difficult thing to get up much interest in their schools. We have from the "Lane district," however, one little item of news. Miss Gerty Kelsey recently won a Webster's Unabridged Dictionary as a prize for good spelling, she having spelled correctly twenty-eight words of a list of twenty-nine given out. For this creditable feat in spelling, a "big dictionary" is none too large a reward.

NEWTOWN ACADEMY.

J. R. Farnum, A.M., formerly of the Bristol High School, is now in charge of this institution, and judging from his record as a teacher in the past, must soon make his influence powerfully felt for good therein, in advancing the cause of higher education. From his neat circular, which we have received, we learn that his assistant in "ornamental branches" will be Miss A. L. Smith.

Our best wishes attend Mr. Farnum in this new field of labor.

NORMAL COLLEGE, NEW YORK CITY.

This institution, founded in 1869 as a Normal school, was changed into a college by the legislature of 1870. The primary object of its foundation was the instruction of young lady teachers, but others, however, were not excluded, provided they had been one year in the public schools and could pass the requisite examinations. The college has now a faculty thoroughly organized, as follows: Thomas Hunter, President and Professor of Intellectual Philosophy; Arthur H. Dundon, Vice-President and Professor of English and Latin; Joseph A. Gillet, Professor of Physics and Mathematics; Philip M. W. Redfield, Professor of Natural Science; Charles A. Schlegel, Professor of German and French; Miss Lydia F. Wadleigh, Lady Superintendent; Miss Winterburn, Musical Directress; George Mangold, Tutor in Music; Miss S. C. Heybeck, Secretary and Librarian; Miss Ida E. Brace, Tutor in Intellectual Philosophy and Methods of Teaching; and eighteen other lady tutors.

The course of instruction extends over three years, the students being classed as Introductores, Sopho-

mores, and Seniors. The studies of the first year comprise history, geography, Latin, French and German, algebra, geometry, natural philosophy, music, drawing, penmanship, etc. These are continued during the second year with the addition of astronomy and rhetoric. Attention is also paid to etymology and composition. In the senior year English literature, zoology, civil polity, trigonometry, intellectual philosophy, object teaching, and lectures on anatomy, physiology, chemistry and school government are introduced. The average attendance during 1871 was 969. The college hours are from 9 A. M. to 2 P. M. for the regular students, every day except Saturday and Sunday, and there is a Saturday session for the benefit of teachers in the public schools who had not the benefit of such training before receiving their licenses.

The cost of the college for 1871, including the amount paid for the Saturday sessions, was \$79,919. A new building is being erected on the block bounded by sixty-eighth and sixty-ninth streets, Fourth and Lexington avenues. It will cost when finished \$350,000. The College is under the control of the city Board of Education and it has been with no small satisfaction that they have contemplated its success. Lately however considerable opposition has sprung up against the institution. The objections urged against it, are that the new college buildings are too far up town; that these buildings are costing too much; that it will require too great a sum to keep the institution in operation; and that it is lowering the grade of scholarship and instruction in the public grammar schools, where young ladies were formerly fitted to be teachers. This results from the fact that most of those intending to teach now attend the College, leaving a lower grade of scholars to the grammar schools. And it is urged by those opposed to the college that the work which it is doing is not of sufficient value to warrant the endangering of a system which has proved so excellent heretofore.

STATE AID FOR COLLEGES.

The recent application of the college of William and Mary to Congress for reimbursement for losses sustained during the war, and the appeal of Amherst college to the legislature of Massachusetts for a gift of \$100,000 from the public treasury of that state, seem to bring into notice the question of state aid to institutions devoted to the higher education. In the case of William and Mary, the college was destroyed by the Union soldiers, seemingly without any just cause or provocation. The college, it is claimed, was, during nearly the whole war, within the union lines and on territory which was regarded as still under federal control, it having been excepted from the territory declared in rebellion by presidential proclamation. But the loyalty of the institution and the territory was not regarded as sufficient to warrant

legal claim for damages and so the success of the appeal rests entirely on the generosity of Congress. In the case of Amherst, the appeal for aid is based on several grounds prominent among which are the fact that the college is in debt, with a prospect of a continued increase in the debt unless aid be given; that other educational institutions in the State have received much greater help than Amherst, and fairness requires that she should now be assisted; and that the College has helped the state, by educating her sons, by helping indigent students, and by assisting in various ways the State Agricultural College.

Waiving now any discussion of the claims of these two institutions for aid, except to say that there seems to be force in the appeals and that they meet with our earnest sympathy, even if they do not receive the approval of our judgment, we will proceed to discuss briefly a single thought connected with the general subject. It is of course impossible, in a single article, to follow out all the thoughts suggested by the question, whether these and similar applications ought to be granted, in other words, whether institutions devoted to the higher education which may meet with misfortune, or from any cause be in want, should receive pecuniary aid from the state. There are involved in its thorough discussion a consideration of the true function of government; its relation to the education of the people; whether if the state aid, or even establish, common schools, it should go farther and bestow assistance upon colleges and universities; the settlement of that difficult question, how far the state must educate the people for its own safety; the question of aid to denominational institutions, and kindred topics either more or less remotely connected. We shall therefore confine ourselves to the development of a single thought, the relation of aid to colleges to subsidies in general.

There are those who do not hesitate to class all such applications, especially such as that of Amherst, as appeals for subsidy, and treat them with unqualified disapproval, on the general principle of opposition to subsidies, a principle which is worthy of all commendation. But, as it seems to us, these opponents of subsidy in their haste overlook a very important consideration. Their mistake arises from considering all appeals to the public treasury for aid as subsidies, or if the definition of the word be cited as excuse for such consideration, from treating all subsidies as blameworthy. But subsidies as we understand them are grants of money or other assistance to some private enterprise, or to some enterprise which, having the public good in view as one of its advantages, is nevertheless managed for the ultimate benefit and profit of the managers. An example of such a subsidy would be a land or money grant to a railroad company, and it might be defended on the ground that it is the duty of the government to foster internal improvements. And this principle is based on the broader one that government should foster whatever tends to benefit the people in general, or, going back a step

farther, we may say that what is derived from the people by way of taxes should be expended for their benefit.

But educational institutions differ from private enterprises of this kind in that they are not private in the same sense. They are like them in as far as both are designed for the general good, but they differ from them in this radical respect, that colleges and universities are not founded or managed for the purpose of making private fortunes. Railroads are a great public convenience, one of the marks of the civilization of a country, but the ultimate aim in view in their management is that those who control them may amass fortunes. But in great educational institutions the case is entirely different. These institutions are not founded or managed for the sake of making money. Their aim is far different, and there are many considerations which go to show the truth of this assertion. In the first place great educational institutions can hardly be said to be conducted on sound business principles, not meaning by this, however, that the pecuniary affairs of colleges and universities are managed unskillfully or dishonestly. But in common business transactions an adequate return is expected for every outlay. In the case of colleges, however, this is not so. The education of every student costs at least double the amount returned by way of tuition. There are not two colleges in the country in which the income from the students will pay the cost of keeping the college going. And even with the endowments which many institutions are fortunately possessed of, they are continually running behind.

Again, the meager salaries paid college instructors,—in many cases mere pittance, compared to what they might earn in other capacities, and the impossibility of giving more with the present income of most institutions of learning, shows that colleges are not money making institutions. If such were their aim, surely their employees would be better paid. Still further as evidence on this point may be cited the fact that no one can be said to own a College. It does not belong to the corporation or trustees who manage its affairs, nor to the faculty who for the time occupy its chairs. When those who are active in its control pass away, they can not dispose of it as of other property. It continually remains, a monument of beneficence, and passes into the control of those who in their turn shall leave it to those who come after them. We conclude, therefore, that educational institutions can not properly be classed with railroads and other such enterprises which most commonly received subsidies from the public treasury, and that in this case one important objection to subsidies in general does not hold good. And while we are not satisfied that the principle of giving money from the public treasury, even to colleges, is a safe one, we still think that if any enterprises are to be favored in this way, it should be the educational institutions of a country.

FISK UNIVERSITY.

Fisk University was chartered in August, 1867, having been before that time a free school for the children of Nashville. The charter entrusts the university to a board of nine trustees three of whom are chosen annually. The trustees at present are :

Gen. Clinton B. Fisk, St. Louis, *President*,
 Rev. H. S. Burnett, Nashville, *Secretary*,
 Rev. E. M. Cravath, New York,
 Rev. E. M. Strineby, New York,
 Gen. John Eaton, Jr., Washington City, *Commissioner*
 of Education,
 John Lawrence, Nashville, Tenn.
 John J. Cary, " "
 Enos Hopkins, " "
 Geo. L. White, Nashville, Tenn., *Treasurer*.

This board of trustees is a self-perpetuating body, and is authorized to control the institution in all of its interests. The charter expressly provides that the privileges of the institution shall be for all, without regard to sex or color. It is not exclusively for colored students and has never been regarded as such by teachers or trustees. The trustees are authorized by the charter to confer such academic degrees as are conferred by similar institutions. Already the work done is crystallizing into university shape. The college department consists of a Freshmen class of four students, two young men and two young women. The college Preparatory has three Latin classes, two Greek, and two in higher mathematics. For the benefit of those desiring to enter soon upon the work of teaching, a normal department presents a course of study which is about equivalent to a preparatory college course. For years to come, much attention must be given to the preparation of teachers, and no university in the South would be complete without a good normal department. There are now sixteen students in Greek, and thirty-five in Latin. The Freshman class of four have taken one term in geometry and are now finishing the higher algebra. The strongest efforts are made to induce the most promising of the students to look forward to a college course, and many of them are catching the inspiration. Book-keeping is also embraced in the studies of the university, and a large class of young men have entered upon the study of that branch with the utmost enthusiasm. Among the older young men there is displayed the greatest anxiety for a business education. This department is under the efficient care of Mr. H. W. Hubbard, a young lawyer recently from the North, who teaches at present without salary. Earnest efforts are being made to develop a theological department. A class of five young men is now under the care of Rev. H. S. Burnett of the University. There are daily recitations in Scripture, and weekly lectures on theology. The young men take turns weekly in preaching before the class. It is proposed to

enlarge the course of study, and to magnify the importance of this work.

The most imperative calls of the colored people of the whole South are for better teachers and preachers than they now have. If Fisk University should do nothing more than train preachers and preachers for the next twenty-five years it would be doing a most noble work. The field yields to none in the land or in the world in importance and promise. It would be an endless task to try to give a list of the needs of the University. It needs everything required of a school of the aims it has in view—lands, buildings, endowments, libraries, professorships, apparatus—in fact, even the most indispensable requisites of a good school—good recitation rooms, good furniture, and other school conveniences. Its buildings are of the most wretched character. Not only temporary are they, but wretchedly weather-beaten and time-worn. While Prof. White has been in the North singing the sweet songs of the olden times to touch the hearts and pockets of the sympathetic listener, the shivering students and teachers have endured the chills and cold of the winter and prayed that he might have abundant success for their sakes. The work has just begun. The institution is laid out on a large scale. Its workers have just buckled on the armor for a battle of years. Most of the teachers are graduates from college and are deeply interested in their work. They are:—Prof. A. K. Spence, A.M., late Professor of Greek in Michigan University, Rev. H. S. Bennett, A.M., Mr. A. C. Burr, A.B., Mr. H. W. Hubbard, A.B., Mr. Geo. L. White, Miss Helen C. Morgan, Miss C. E. Burr, Miss M. C. Day, Miss E. C. Cross, Miss Henrietta Matson, Miss S. M. Mills, Miss R. Massey, Miss M. L. Santley.

Some of these have consecrated their lives to this work. Others are in the work only temporarily. The terms of tuition are one dollar a month for the lower departments and about one dollar and a half per month in the higher.

VALENCIA UNIVERSTIV, SPAIN.

The following interesting letter from Professor W. L. Montague we find in the columns of the *Amherst Student* of February 24th:

Among the eleven Universities of Spain, that of Valencia ranks the fourth. It has until recently been considered the equal of those in Barcelona and Seville, but since the revolution the government has withdrawn some of its privileges, so that now it can confer no higher degree than that of M.A., except in the Faculties of Law and Medicine, where it still confers the degrees of Licentiate and Doctor. Compared with the University of Salamanca, in the days of Don Quixote, when more than ten thousand students thronged its halls, the University of Valencia is small, but compared with many of the universities in America, it is one of the first

in importance. The number of students connected with it, in all departments, during the past year, was 1,890. The number of professors is about forty.

The course of study is somewhat different from that in the American college. It comprehends a part of that embraced in our college course, together with that of the professional schools. Candidates for admission must be 16 years of age, and must have passed through the schools of primary and secondary instruction. The primary instruction corresponds very nearly to that given in the common schools of America. The secondary instruction is given in the Institute, and embraces nearly all the subjects taught in our high schools, academies, scientific and polytechnic schools and colleges, excepting the ancient languages. Greek is not included in the studies of the Institute, (nor in those of the University), though instruction in that language is given when desired; but Latin is taught during two years. At the end of this course the student receives the degree of B.A., and is prepared to enter the University. Here he is conducted, as the Rector says, "to the foot of the temple of knowledge, and taught the science of man, and to know in all its infinite manifestations the adorable and supreme wisdom of God."

The University embraces four Faculties; of Law, Medicine, Science, and Philosophy and Letters; besides those which have been recently added, of the Notary, Pharmacy, Agriculture, Veterinary Surgery, and the Fine Arts.

The complete course of study is designed to occupy seven years; three years for the degree of M.A., three for that of Licentiate, (Licenciada), and one more for that of Doctor. This course of study still remains fixed, but the time in which it may be completed, is according to the will and ability of the student. He may shorten it to four or five, or prolong it to ten or twelve, years.

Instruction is given both by lectures and by text books, but the daily attendance is optional, the student's attainments being determined by the examinations, which are both oral and written. Of these a record is kept, which forms the basis upon which honors are conferred. That these examinations are quite rigid, is shown by the fact that, at the end of the past year, 24 of every 100 presenting themselves for examination failed to pass, and were "suspended" to pursue the same studies another year; or until the next examination, which occurs in February. The principal examination is in June, and those who are especially successful, are allowed to apply for examination upon the studies of the following year in February, and thus shorten the time spent in the University. The expense to the student is, for tuition, \$12 for the studies of each year, which is paid to the government, and \$2 for each examination, which is paid to the professor who conducts it. This tuition is the same whether the studies are completed in six months, or in six years. In addition to these fees for examina

tions, the professors receive a fixed salary from the government, varying according to age and ability, from \$600 to \$1,500. The expense of board and lodging is considerably less than at Amherst, since provisions are cheap, and rent is about one fourth of that which is paid there.

Attendance upon all the exercises is voluntary, yet good order seems to be maintained with very strict discipline. We have passed the University daily for several weeks, and have been much impressed with the quiet which is always observed. Although hundreds of students are in the court, or passing from their recitations, there is no more noise than would be occasioned by any congregation of equal number leaving a church on Sunday in New England. Any "impropriety of conduct," disorder in the class-room, or about the University is marked with a demerit, varying from one to fifteen, according to the nature of the offense, and whenever the number reaches fifteen, the student's connection with the University is terminated for that year. Last month the students wished to have the vacation commence on the 8th instead of the 15th. As the desire was not gratified, a disturbance arose which increased to such a degree that the Rector was obliged to go out to restore order. His words were for a time disregarded, and in the struggle one of the porters was scratched so that blood was seen upon his face. When the riot ceased, the professors were called together, a court of investigation was instituted, a trial held, and the one who drew the blood was "expelled." The doors of every University in Spain are "forever" closed against him. In addition to this he was passed over to the Civil Court and is now in prison. Two others were suspended, one for two years, and the other for one year, and several received a public reprimand.

There are no dormitories connected with the University, and all the lecture-rooms, cabinets, etc., including the chapel, public hall and library, are comprised in one immense building in the form of a parallelogram inclosing a large open area or court.

The cabinets of Geology and Mineralogy seemed quite inferior to those in Amherst College, but the collection of birds was particularly fine and extensive. In the department of Anatomy we were especially interested in the complete skeleton of an enormous whale. The vertebræ were fifty in number, the largest 18 or 20 inches in thickness, and the entire length was about 75 feet. The creature had somehow wandered into the Mediterranean Sea, and being unable to find his way out was captured near Valencia.

From the Cabinets we pass to the Library, which contains 46,579 volumes. Of this number, 646 were added the past year by gift, with one exception, as there is no fund with which to make additions by purchase. The number of readers during the year was 8,216, consulting 9,887 volumes. Theology 144, Jurisprudence 1,370, Science and Arts 5,477, Belles Lettres 838, History

1,834, Encyclopædias, Reviews and Periodicals 225. Valencia is noted as the place where the first printing press was established in Spain, and in the Library we were shown the first book printed on that press. We were also shown the Bible of St. Vincent, an elegantly bound volume of the 13th century. It was all written with a pen, but so distinctly and perfectly are the letters formed, that the work would scarcely be distinguished from a printed volume of a date more than two centuries later. Among other curiosities shown to us was the work on chivalry, which turned the head of Don Quixote, also a magnificent copy of Virgil printed in 1490, and a very valuable book of which there are but two other copies in the world, one in Rome, and the other in the British Museum. This Library has also a fine collection of coins and illuminated manuscripts, and is rich in works of chivalry, in editions of the 15th century, in Bibles, and works of the early fathers of the church.

With a few words about the location of this University I must close this already long letter. It is in a beautiful city of 106,000 inhabitants, the capital of the province of the same name. It is one of the most enterprising cities in Spain, with a port of considerable commerce, having sent this season ten steamers laden with oranges and figs, to New York and Boston. It has extensive manufactories of silk and velvet, and printing establishments, which, next to those in Madrid, produce the greatest number of books in Spain. It is surrounded by a fertile plain three leagues in diameter called the "*Huerta*" or large orchard, which has been considered by some "the most beautiful garden in the whole world." Though but little rain falls here, 2 or 3 inches annually, the soil is made to produce four or five crops in the year by a system of irrigation through a multitude of canals and rills, which are said to remain and look the same as when the Moors first constructed them eight centuries ago. Here figs, olives, oranges, palm trees, and almost all kinds of grain and fruits grow in wonderful luxuriance. Oranges can be bought at ten cents a bushel, and we have bought excellent figs at three and one-half cents a pound. The climate is quite agreeable now, while the extreme heat of summer is tempered by the sea breeze, which uniformly refreshes the air during the middle of the day. Frosts occur but seldom and snow is scarcely seen once in 20 years. The sun has shone brightly for fifteen successive days, and we have been able to take our daily walk in beautiful gardens, among orange trees, loaded with luscious fruit, along avenues bordered with roses, narcissus, and English violets, and various other plants, shrubs, and trees in full bloom.

All this is beautiful, but beauty alone cannot satisfy the soul. It craves truth and goodness and to a sad extent these are both wanting here. There is no New England Sabbath with its hallowed hours of rest and worship, and on those days, which here are holidays, we

especially miss our Amherst home with all its sacred privileges, and in our loneliness we offer our fervent prayer that God will bless Amherst College and will make it more and more a blessing to our native land and to the world.

W. L. M.

The proposition to devote the Chinese indemnity fund to the founding of a college in China, for the purpose of educating interpreters, etc., has assumed the form of a bill in the Congressional Committee on Foreign Relations. Mr. Jones the most earnest worker in the project, and who displays very praiseworthy energy, has recently been twice before this Committee. The bill, as now before the Committee, provides that the principal of the fund shall be kept intact by the Secretary of State and be invested in government securities. The income, which amounts to about \$27,000 a year, is to be devoted to the purpose desired. Congress is to appoint trustees who shall control this sum and have power to arrange all details and manage the affairs of the college. These trustees are to give a report from time to time to the president of the United States. The expenses must not exceed the income from the fund. At the meeting on Tuesday Mr. Jones read a letter from Dr. J. Wells Williams of Peking, which declared that \$20,000 would purchase ample ground and buildings with which to begin the work. We can only hope that the matter will be pushed forward as rapidly as possible.

BOOK NOTICES.

HALF HOURS WITH MODERN SCIENTISTS.*—This is a book for thinkers, or for those who would become thinkers; to one of which classes all of our teachers should belong. The "University Series," of which this comprises five numbers, is much to be commended, as well calculated to conduce to general improvement in mental culture. For it puts into so cheap and convenient a form these later researches and thoughts of great men, that any person of ordinary means can avail himself of them. Any one of these treatises is alone worth the price of the volume, and to procure any one from other sources, would doubtless cost more than the whole combined, as presented in this volume.

The opening treatise is that most famous one delivered as an address, by Prof. T. H. Huxley at Edinburgh, in 1868; its author is professor of Natural History, in and also of Comparative Anatomy and Physiology, in two distinct Institutions, and President of the Geological Society of London; he is now regarded, young as he yet

is, as one of the first of living naturalists. This treatise, in connection with subsequent papers by the same author, has made a profound sensation in the intellectual world. It hinges about that remarkable word and remarkable object, "protoplasm;" it is a splendidly framed assumption of the most complete and absolute capacities of life-generation for this curious cellular compound of carbon, nitrogen, oxygen and hydrogen. It goes clear to the "ultima thule" of possibilities on that side of the question. So far, in fact, that our common sense and our higher instincts tell us that the great philosopher has plainly done, what we impulsive human beings are constantly doing,—ridden his horse beyond the boundary line of strict logic. His views should be read with due caution, but none the less with respect; to those who know that there is a higher and nobler personal power than all the blind forces of nature, these splendid researches into the profounder simplicities of being, will only bring the more devout respect for the Creator.

The third treatise is as able and as interesting; it is a reply to Huxley in regard to his views of protoplasm, by James Hutchison Stirling. It shows clearly where he has outrun his logic, and gives a view of the matter, far more likely to be accepted by the majority of candid searchers after truth. It should by all means be carefully read.

The fourth treatise, on "The Hypothesis of Evolution," by Prof. Edward D. Cope, endeavors to reconcile the Darwinian views of development with Biblical history, and to overcome the repugnance of mankind to the very close relationship in which under that peculiar theory we are brought, to the ancient and respectable family of apes.

Of the two remaining papers, that by Prof. G. F. Barker of Yale College, on "Correlation and Conservation of Forces," is one to be commended to our teachers for thoughtful consideration; it will start new ideas in those who have been vegetating along in the ways of the old philosophies. There are many who, not being able to avail themselves of the larger work of Prof. Youmans on the same subject, will be glad to know that the essential points of the theory are here presented in a condensed and very interesting shape. This great theory is now on its trial before the world; it is brilliant; it is far-reaching in its interpretations of phenomena; it is open to profound objections, many of which have not as yet seen the light, but it may be in the main the correct theory for all that; time alone will decide. Meanwhile a teacher is really to be counted *ignorant*, who does not make himself familiar with these views of force; for modern studies in physics are becoming largely based upon them. We can by no means follow Prof. Barker in implicit assent, in his conclusions or his hintings at probabilities in regard to the correlation of thought-force with our ordinary physical forces. We believe that science is capable of recognizing, while utterly in-

**Half Hours with Modern Scientists.* Huxley, Barker, Stirling, Cope, Tyndall. Published by C. C. Chatfield & Co., New Haven, Conn.

capable of analyzing thought and soul forces, and that some leaders in scientific thought are making the rather unfortunate mistake of reversing this view of the matter,—that is, of saying that they cannot scientifically recognize any higher power than natural forces until they can detect them, and perchance measure them, by their “scopes” and “meters.”

This volume closes entertainingly and profitably by a trio of scientific yet popular addresses by Prof. Tyndall, whose name alone should be sufficient to secure readers. That on “Dust” has appealed most generally to popular wonder, and reveals much that may yet have an essential bearing on the great sanitary questions of the day.

We are convinced that both as a matter of actual information on some of the grander questions of our human nature, and also as an important adjunct to mental training, teachers should procure this book; not as an ornament to their shelves, but to be studied at the earliest moments of leisure.

HAGAR'S MATHEMATICAL SERIES.*—These arithmetics are issued in a very attractive form; in typography and illustrations, coming up fully to the prevailing excellence in this respect in school-books. They are also well adapted to three progressive grades of pupils, and present the various topics in a convenient shape for use in classes.

In these respects however, its merits and consequently its claims seem to be equally shared by the other leading arithmetics before the public. In a brand new treatise prepared for us by the principal of a distinguished Normal School as the latest result of large experience in methods, we naturally expect to find some new and improved modes of presentation, if not actual advance in other respects. We are unable to find any such features in this book; we are at a loss to point to anything distinctive or original, unless it be as to various minor little matters concerning *taste* more than effective method. In fact, we feel inclined to ask, “What gift is the author supposed to possess, which has qualified him to add this book to the excellent ones on the same subject now so popular?” So nearly does this resemble some of its predecessors, that to consider it as following in the wake, and thus needlessly multiplying books would seem to be the most favorable opinion that we could take of it.

Some local infelicities are apparent; thus in defining a perpendicular line as “a straight line meeting another straight line so as to form two equal angles,”—no provision is made for cases where, as with the sides of an ordinary square, one line actually forms but *one angle* with another, yet it is perpendicular to it.

Another objectionable feature is the introducing of

**Mathematical Series*. I. Primary Lessons; II. Elementary Arithmetic; III. Common School Arithmetic; by D. B. Hagar, Principal of the State Normal School, Salem, Mass. Published by Cowperthwait & Co., Philadelphia, Pa.

various names of weights and measures of the metric system in connection with the discussions of our present systems of denominate numbers, without a single word of explanation beyond the bare definition; while strangely enough the presentation of the metric system itself is banished to the last pages of the book. It is certainly in violation of the better principles of modern teaching, to thrust at the poor pupil already dazed with our maze of irregular immethodical compound numbers,—the most uncongenial part of the metric system—the bare names dekameter, centiare, stere, &c., entirely unrelieved by any preceding explanation, and divided from the only thing that can palliate their use, the admirable decimal system of which they are the component elements.

Any live teacher of our best schools would keep this long-legged Gallic terminology in the back-ground till he had succeeded in interesting his pupils in the really winning *system* that makes the rest endurable.

THE CHILD'S BOOK OF NATURE, IN THREE PARTS.*—A well-known book of some three years standing; popular with parents, teachers and children. It is the work of a truly learned man and yet is kept constantly with much tact upon the level of a child's appreciation. A great variety of subjects is here found, each topic being set in such a pleasing group of details as to make delightful reading for the little ones. The whole work is divided into three parts, the first treating of plants, the second of animals, the third of air, water, heat, light, &c. Each of these parts is also bound by itself, to accommodate those teachers who do not desire the whole.

There is one good word which we are not able to speak in behalf of this book. We would like to say that it is brought down fully to the accepted views of modern science. To these, however, it pays little attention. Not that much of the later developments would have any place in so simple and elementary a book. Yet there are not a few points of elementary science which have been materially modified by more recent investigations. The work of the improved microscope of to-day, of the wonderful spectroscope, and of the many other modern appliances, has not been only among the more minute details of scientific fact, but now and then reaches down and overturns some one of our time-honored foundation stones, substituting one better adapted to the modern superstructure. It is very important to conform statements of facts and views in our elementary books on natural science to those presented in the more complete works now accepted as authority. In this respect the present edition of the *Child's Book of Nature* is somewhat faulty, though to no serious degree. Thus heat is said to be “a *thing*,” while it is now considered by nearly all scientific men to be merely a

**The Child's Book of Nature*, in three parts: By Worthington Hooker, M. D. Published by Harper & Brothers, New York City.

motion; balloons are emphatically pronounced to be of no possible use to mankind. No book issued after the siege of Paris is justified in that remark. It is stated that in plants "there is a set of pipes for the sap to go up, and a set of pipes for it to go down." Prof. Gray, in harmony with the development of modern scientific observation, says on the contrary of these sap organs: "Wood-cells, like other cells, have no openings; each has its own cavity closed and independent. They do not form anything like a set of pipes opening one into another, so as to convey an unbroken stream of sap through the plant, in the way people generally suppose."

We trust that in future editions of this book these objectionable statements of discarded views may be made to give way to correct and accepted ones.

THE LAND OF DESOLATION.*—Dr. Hayes is well known as an arctic explorer, first in company with Dr. Kane (in 1853-5); then independently (in 1860-1); and again with Mr. Bradford the painter (in 1869). His books are also well known,—vivid, entertaining and instructive sketches of life and adventure in the Northern seas.

His last journey, which took him for a thousand miles along the Coast of Greenland, even to the ice of Melville Bay, has given him the material for the new book now before us, with its not very well chosen title, "The Land of Desolation," borrowed from old John Davis's Mariner in 1585. This little volume is in three parts; one, chiefly devoted to the remnants of the Northmen settlements, dating ever so far back, perhaps to the tenth century; a second, chiefly given up to studies of glaciers and icebergs in their native land; a third full of sketches of scenery and incidents "beneath the midnight sun,"—beyond the Polar Circle. A sprightly style, a practised pen, abundant woodcuts, and a variety of acquisitions combine to make the story of the arctic traveler highly entertaining.

The reader must not expect to find in the chapters on the Northmen, any very profound contributions to archaeology, nor in those on Glaciers, the exact observations of Tyndall in the Alps; but rather a frank, popular account of the facts which came under the Doctor's observation in a voyage which he frankly says was devoted to the "picturesque" rather than to the "scientific."

The Land of Desolation. By Dr. Isaac I. Hayes. New York. Harper & Brothers. 1872. 357 pp. 12 mo.

APPLETON'S HAND ATLAS.*—The work just introduced to the American public under the name of "Appleton's Hand Atlas of Modern Geography in 31 Maps" is not an original American work, but an impression, designed for use in this country from the plates of the Public

* *Appleton's Hand Atlas of Modern Geography.* 31 Maps. Edited by Rev. George Butler. New York: D. Appleton & Co. 1872.

School Atlas, lately published in London by the Longmans. Rev. George Butler, the editor, is the Principal of Liverpool College, and is not to be confounded with Rev. Samuel Butler, who became Bishop of Lichfield, and whose "Modern and Ancient Atlas" has long been familiar to the students of Yale College.

The merits of this work are these:

1. Very clear outlines and lettering,—avoiding the crowded aspect of many German maps, and the patchwork coloring of many American works. The aspect of each map is good, making it easy to consult.

2. Decided prominence is given to the elevated plateaux and mountain regions,—not as much indeed as would be given in a physical map, but more than is common in a work designed for general use.

3. Especial fullness in European maps, each of the chief countries having a separate page.

4. Occasional subordinate maps of interesting regions; e. g., the Bolivian Plateau and the La Plata Mouth, on the map of South America. More such maps might have been advantageously inserted.

5. Recent corrections of the plates so that the present outlines of Germany, the latest outlines of Western United States, the newest subdivisions of Italy, etc., are indicated.

6. Names are almost invariably printed horizontally, (except the names of rivers), thus facilitating reference.

The atlas was designed originally for students in Eton, Harrow and other Public Schools of England, and will doubtless be very welcome to students of corresponding age here.

PERSONAL.

Mr. Moses E. Banks, principal of the Birmingham Grammar and High School, seems to have labored with marked success and acceptance since he came into his present position. Very seldom does a public school teacher have the happiness to be "Master of the situation" in his district, as Mr. Banks now is in his. The School Visitors of the town (Derby), through their high appreciation of his ability and worth as an educational manager and citizen, have come to treat him with very liberal, and somewhat unusual, consideration. For instance, he has a standing invitation from this board to sit with its members at each of their meetings,—a fact very significant of the confidence reposed in his discretion and trustworthiness. He is also clerk of the district committee, and has the duty of hiring and paying the teachers in his building—some ten in all—devolved upon him. Birmingham is very largely indebted to Mr. Banks for the imposing and admirably appointed school building, which is now one of the chief architectural ornaments of that beautiful village. He drew all the plans

of this building, and in this thing his work is now his sufficient praise. The house was built in 1869, and cost, with land and furniture, about \$60,000. The school under Mr. Banks is very prosperous, and draws pupils from every district in the town of Derby, as well as from the neighboring towns of Seymour and Huntington.

It is natural that a teacher so versatile and successful should be desired for other positions, and we are not surprised to learn that Mr. Banks has had some loud calls to leave Birmingham. We take pleasure in assuring any parties who may now be seeking him, that the CONNECTICUT SCHOOL JOURNAL believes it is safe in cordially commending him to them as a very genial gentleman and accomplished teacher.

The Geological Society of London at its recent meeting awarded the Wollaston Medal for the present year to Professor J. D. Dana, and the balance of the proceeds of the Wollaston fund to Mr. James Croll, of Edinburgh. This medal was founded by Wollaston himself in 1828, and is given as a mark of honor for distinguished learning and ability in the departments of Geology and Mineralogy. It was formerly made of palladium, but is now a gold medal, adorned on one side with a head of Wollaston and on the other with a wreath which surrounds the name of the recipient. It was bestowed in 1871 upon Professor A. C. Ramsay, formerly president of the society and now one of the council, in 1870 upon Deshayes, in 1869 upon H. C. Sorby, and in 1868 upon Prof. Carl. F. Naumann. Wollaston, the founder of the medal, was one of the most eminent scientific men of his day. He was born in 1766, and graduated at Caius College, Cambridge, where he took the degree of M.D. He, however, did not devote himself to the practice of medicine, but turned his attention to the physical sciences. Among his other contributions to science were the discovery of the metals palladium and rhodium, and the invention of the Wollaston Goniometer and the Camera Lucida. He was a member of the Royal society, and was awarded one of its medals for the discovery of a method of making platinum malleable. He died of effusion of blood on the brain in 1828.

Dr. Reid, president of the State University of Missouri, has proposed the following plan for bringing the University into closer relation to the public schools of the State:—
 "1st. The University should take up the studies exactly where the high schools of the State leave off; and to this end there should be laid down by law a course of study for all high schools in the State, which they should be required to follow. 2d. There should be some change in the way of appointing State students to the University. 3d. A system of public libraries in all parts of the State should be adopted and kept up for the use of every country school." Whether this plan or some other is followed, there can be little doubt that the subject of the dependence of the higher educational insti-

tutions upon the lower schools, and the connection between them, should be thoroughly agitated, and an improvement brought about. While advanced study and higher education is receiving so much attention, let not that which makes the latter possible be entirely neglected.

FACETIAE.

New Yorkers say amen to the following: A great authority on turtles writes: "Wyoming territory probably swarmed with turtles in the early part of what is known as the tertiary period. This we know from the large number of fossils which are from time to time discovered there. There were both fresh-water turtles and land turtles, and it also appears that crocodiles were quite numerous throughout the same region. Alas! there were no aldermen in those days, or the right man would soon have been in the right place."

Another honest old matron read an item in one of the papers lately, describing how a grindstone burst in a saw factory and killed four men. She just happened to remember that there was a small grindstone in her cellar, leaning up against the wall. So she went out and got an accident insurance policy; then summoning the hired girl and holding the pie-board in front of her face to protect it in case of explosion, she had the stone taken out into the alley, where twenty-four buckets of water were thrown upon it, and a stick was mounted in the hole, bearing a placard marked "dangerous." She says it's a marcy the whole house was not blown to pieces by the thing before this.

A lady journeying on a train of the Michigan Southern R. R., suddenly began to worry and fidget, till a physician sitting near asked if he could render her any assistance. She then explained that she had lost her ticket, and to add to her misfortunes could not recall the name of the station at which she must leave the cars. "Can you think of anything resembling the name in sound?" asked the physician. "Well," answered the lady, "as nearly as I can remember, it sounds like hips and ankles." "Just so," replied the physician, "and if you will stop at Ypsilanti, you will be all right."

"Madam," said a boarder to his landlady, "I am very sure this pepper is half peas." "Peas!" cried the lady, bridling up, "Peas, indeed! That pepper is Small and Hommersly's very best. You don't know anything about pepper, sir, if you think there's peas in that." "For all that, madam," said the boarder, "I'm sure that pepper is half peas—p-e-p, pep, p-e-r, per. Six letters and three of them p."—*Hearth and Home.*

A tombstone in England, covering the remains of a husband and wife, makes the somewhat unfortunately ambiguous assertion that their "warfare is accomplished."

TEACHERS' BULLETIN.

WANTED.—A situation as Principal of a Graded School. The applicant has had several years' successful experience as Principal of a school in one of the cities of Connecticut. Can furnish good testimonials. References, B. G. Northrop, Secretary of State Board of Education, or H. C. Davis, New Haven, Conn., to whom communications can be addressed.

SITUATION WANTED AS TEACHER.—A lady who has had experience in teaching in the Chicago public schools, would like a situation as teacher. Refers to Hon. B. G. Northrop, New Haven, and Charles Northend, New Britain.

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It gives me much pleasure to testify of the success attending the study of vocal music in our school under the superior management of Prof. Jepson. Mr. J. is thoroughly qualified for his work, and enters into it with a zeal that is highly commendable. Not being satisfied, however, with what he has already done, he has conceived the idea of revising his "Elementary Music Reader," making a complete and easy gradation of exercises adapted to the wants of the younger as well as the older pupils. Mr. Jepson has already established an enviable reputation in New Haven as a teacher of vocal music, and his revised work, so admirably adapted to school use, will no doubt meet with a large sale.

GEO. R. BURTON, Prin. Wash. School, New Haven.

For several years I have had the opportunity of observing Prof. B. Jepson as a teacher of music in public schools, and more particularly in our own High School. In his department of instruction, I have never known his equal in securing early and valuable results. Whether his success has been mainly due to his own personal efficiency or to the peculiar features of his system as comprised in his "Music Reader," I cannot tell; I only know that the training he gives is thorough and natural, and that his pupils early learn to sing with a rare degree of intelligence and self-reliance.

T. W. T. CURTIS, Principal of High School.

Mr. Jepson's work and methods in teaching music in the New Haven public schools is an undoubted success. I would cordially commend his books to the attention of all who have an interest in this study in schools.

JOHN G. LEWIS, Principal of Webster School.

It gives me great pleasure to recommend Prof. B. Jepson's system of music and vocal culture. At the time of its introduction I doubted the utility of teaching note singing in our large schools, but its perfect success has dissipated prejudice, and I should now regret any change which would deprive us of instruction so valuable. Very truly,

L. L. CAMP, Principal of Dwight School.

It gives me pleasure to recommend Prof. Jepson's "Music Reader" to any wishing a thorough course of instruction in music in their schools. The books are, as their title imports, a series of music readers systematically and progressively arranged for the use of all grades of pupils, from the Primary to the High School. These readers have borne most successfully the best test of school books, namely, a daily use in classes for a term of years; and have been instrumental in convincing the most skeptical that all can be taught to read music with facility by the time that they are prepared for the High School.

JAMES D. WHITMORE, New Haven High School.

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JOSEPH GILE, Principal of Eaton School.

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RALPH G. HIBBARD, Professor of Elocution.

Prof. Jepson's Music Reader is, in my opinion, the most systematic and best adapted to school use, of any work of its kind now before the public. I have entertained a high opinion respecting its merits, since first seeing it in manuscript—an opinion which its use in the school-room for several years has greatly strengthened. Prof. Jepson is deserving of the praise which his highly meritorious work receives, and we cheerfully add our testimony to the above.

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